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STEEL

The Magazine of Metalworking and Metalproducing

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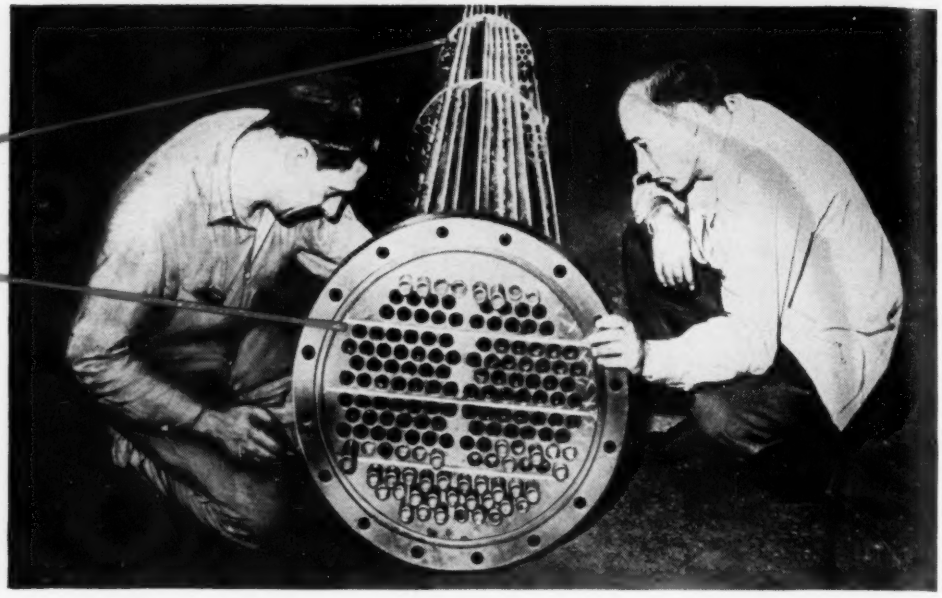

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Behind the Scenes...

Old, Old Information

The other day somebody wanted some price quotations on metals in 1888, and we happened to glance over the shoulders of our Reader Service dept. while they dug out the necessary information. What they found out about metal prices in those dear dead days we don't know, but we did note that you could then buy combination subscriptions to the Iron Trade Review, our name in those years, and popular magazines of the day. In combination with Frank Leslie's Illustrated Newspaper, for example you could buy ITR for only $5.25 per year, both papers. Frank Leslie's Popular was apparently less popular than his newspaper, because the combo with ITR cost only $4.50. Frank's outfit also put out the "Budget of Wit", which cost $4.00 in combination, and the same gentleman's "Pleasant Hours" ran cheapest of all, only $3.50 per year for it and the ITR together. Guess humor and pleasure in those times weren't worthy of so much coin of the realm. Nowadays, it's the other way around.

All About Tool Steel

Next week's book will carry the last of the current series on tool and die steels. This material will be published in handbook form, to answer all the requests for same. Prices will be nominal, which means we don't yet know what they're going to charge but it won't be much, either actually or in terms of the amount of helpful information in the book. If you want copies, write a letter to our Readers Service Department and tell them how many. We'll see that your order is filled as soon as copies are available.

Another Price Special

The boys upstairs have gone and done it again. Why, it's practically getting monotonous, telling you all about the outstanding editorial performance of our staff, but we just have to force ourself to do it, time & again. This one is really a honey, and a worthy follow-up to that by-now-famous two-page table on the basing point price system. In this issue you'll find a complete round-up of steel prices. It shows you which companies are selling products for how much. It also shows how much freight has to be added to arrive at the price of steel on your own loading dock. We wanted the editors to put in a section telling you when you can expect delivery, too, but for some unknown reason they refused to add that. All we got was a fishy stare and a few giggles. We are practically certain that a few of you will probably want extra copies of this guide to the steel industry's new pricing system, so our Readers Service Department is prepared to ship out reprints at the princely price of 2 bits a throw. Of course, if you want a batch or a slew, we'll see about prices on quantities. In fact, we hear that there's a price schedule posted on the bulletin board several pages to the east of here. All we ask in return for this valuable service is to have you keep in mind that whenever better information on the metalworking industry is published, it's sure to be in STEEL.

Baseball in Boston

Our comments on baseball have been the subject of snide remarks from some of you folks whose sympathies lie in other directions. By the time this appears in print, the results should be obvious, but at this writing, there is still a range of possibilities. Our New England arm, Les Browne, doesn't think so, however. He claims he has already arranged for transportation to all series games. This will cost him between 40 and 70 cents, depending on how many ten-cent fares he has to pay either to Fenway Park or Braves Field. Such confidence!

Tired Gadget

This is, among other things, the age of gadgets and gimmicks. Takes quite an outstanding gadget or gimmick to poke its head above the millions that seem to pour endlessly out of the gadget mills. The other day, however, we were stopped dead by a new gadget in the form of a mechanical pencil. Looked just like any other mechanical pencil, with the top and bottom made of white plastic and the center section of what appeared to be clear plastic. When we started to write with the pencil, however, four miniature white sidewall tires appeared in the center of the pencil and lined themselves up in the clear center section. Turns out that the center is filled with some kind of liquid, and the tires hide themselves in the barrel of the pencil until it is tipped vertical, when they all float into sight!

Shrdlu

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STEEL

Vol. 123—No. 13 September 27, 1948

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September 27, 1948

Mechanization

One of the most interesting postwar developments in the metalworking industries is the Oldsmobile V-8, high-compression, Kettering engine. It is distinctive in that it opens a new chapter in the evolution of internal combustion prime movers. In the long run it may lead to important changes in many of the industries which supply materials, parts and fuel for the manufacture and operation of motor vehicles.

Right now the new $10 million plant designed to build the new engine is almost as noteworthy as the engine itself. It reflects to a considerable extent many of the trends in postwar manufacturing practice which management is being forced to employ in order to combat high costs.

As would be expected, automaticity is carried to the "nth" degree. Many functions heretofore performed by humans are assigned to electrically and hydraulically controlled arms and fingers interconnected through miles of wire and thousands of relays to the point where manual effort is confined largely to pushing control buttons. This high degree of automaticity extends throughout the plant's impressive array of elaborate transfer-type machine tools, conveyor lines, assembly fixtures, test stands and inspection devices.

On single-shift operation, 750 employees are expected to turn out 30 engines per hour. This figures out at 25 man-hours per engine for all operations involved in machining, assembling and testing. This is far below the labor requirements in conventional engine-building establishments.

This illustrates what can be done when management has unusual freedom of action in designing a new plant to fit a mass-produced product. Few manufacturers can hope for the same degree of freedom. In most cases management has to do what it can by combining some new equipment with some old equipment in an existing plant. In spite of the obvious limitations of this procedure, impressive results are being achieved when the proper emphasis is placed upon machines best suited to the work, materials and work handling equipment which serve each operation adequately, and a co-ordination of all into a smooth-working layout.

This is simply a postwar intensification of the age-old attempt to increase man's productivity through mechanization. Three rounds of wage increases, plus inflation, have heightened it to a feverish pitch.

* * *

SOCIALIZING SAVINGS: Former President Herbert Hoover's address to the National Press Club afforded a clear insight into the objectives of the Commission on Organization of the Executive Branch of the Government, of which he is chairman. The commission has 22 task groups, composed of 250 leading citizens. They will issue a report next year suggesting how the Executive Branch can be organized for greater efficiency and economy.

Back of this corrective effort is a realization that the nation's tax burden threatens to curtail the economic and social advance of the country. "We have not socialized industry," said Mr. Hoover, "but we have come close to socializing savings into the government." This is apparent in the large amount of long-term capital borrowed from banks instead of from investors, whose savings are drawn in increasing volume into the treasury of the United

(OVER)

States. "If this situation is not changed," warned Mr. Hoover, "we will come to the point where the only source of capital will be the government."

He holds that many new federal projects, "worthwhile as they may be, must be deferred until the overburdening tax is corrected."

This is logic which industrial executives can understand and will applaud. Mr. Hoover's commission can only recommend. When its report is issued, industry should stand united with all other forward-looking groups in demanding that Congress give proper consideration to the commission's recommendations. —p. 64

* * *

ADVICE IS BUILD NOW: During the past year construction of a number of industrial plants has been held up because of high building costs. J. P. H. Perry, vice president of Turner Construction Co., told a New York audience last week that barring war or depression no appreciable drop in construction costs is in sight. His company, he said, is advising clients that if they can make money with a new building or if they must have more space "they might as well make up their minds to get the job under contract as quickly as possible."

Mr. Perry believes that if a break in prices comes in the next four or five years, "it will be moderate in extent and of short duration." One reason for this belief is the great backlog of unsatisfied building and general construction existing today. —p. 41

* * *

TIMING IS FORTUNATE: Editors of this publication have prepared a special section in this issue to present a compilation of steel prices quoted by practically all producers and a discussion of the major factors contributing to the current bizarre pricing situation.

To those who study prices and text carefully it will be apparent that the nation is lucky that mill prices were introduced during a seller's market. Had Supreme Court decisions and Federal Trade Commission rulings forced a sudden shift to mill pricing during a period of sharp competition, thousands of consumers and some producers would have been thrown into red ink overnight and scores would have been forced out of business in the first two or three months.

As it is, the real effect of the shift has been softened by the fact that momentarily ability to procure steel is more important than price. Fortunately this gives a little time for adjustment and correction. The feeling that Congress should take a definite stand on the legality of price practices seems to be gaining ground rapidly—particularly among consumers at unfavorably located shipping destinations. —pp. 39, 47

* * *

DON'T WAIT FOR DRIVE!: Alex Miller is on sound ground when he appeals to industry not to wait for the official opening of the scrap drive but to turn in all available material as soon as possible.

This suggestion is somewhat in line with opinion expressed in letters to this editor. Our correspondents ask why this drive is limited to industry, farms and auto grave yards. Why not extend it to all sources of scrap? Persons in charge of the drive explain the limitation by saying that the railroads had their drive in the spring and that the general collection of scrap produces a lot of "bed spring and bird cage stuff" that is not desirable.

Few will quibble over details with the hard-working people directing this drive, but it grates on one's nerves to see scores of municipalities placidly laying asphalt over abandoned street car rails because nobody seemingly can afford to remove them for scrap. —p. 44

* * *

NAVY IS ON THE JOB: Sometime during the recent war somebody in the Navy became enthusiastic about materials handling. As a result the Navy is one of the most active proponents of efficient materials handling, packaging and storing.

This will be evident to those who attend the demonstrations at Bayonne, N. J., Sept. 28, to be held by the Bureau of Supplies and Accounts and the Navy Industrial Association. One feature of this event will be a three-part exhibit showing how nonstandard boxcars are causing monetary losses to manufacturers, shippers and consumers. One demonstration, using a mock-up of the side of a boxcar with an adjustable door, will illustrate the difficulties of moving pallet loads through different widths of less than eight feet. Another will show the advantages of boxcars of latest design. A third will show mechanized loading with palletized cargo.

This timely Navy show should attract a good attendance of industrialists. —p. 108

E. L. Shaner

EDITOR-IN-CHIEF

News Summary

SEEK PRICING CLARIFICATION— Like the bubbles in a boiling pot, demands for congressional action to legalize the basing point system, or otherwise clarify today's uncertain pricing practices, are rising from steel consuming groups. By the time the Capehart committee opens hearings on the matter, these likely will have developed into a real pressure campaign (p. 39). Meanwhile, the Federal Trade Commission has rested its case against the steel industry's pricing system (p. 40), with government counsel insisting it has proved collusion.

GUIDE TO MILL PRICING— The big result of FTC prosecution of the steel and cement industries has been to effect a changeover to mill pricing. What this means to the metalworking industries, prices quoted by the steel producers, and freight rates from major producing to large consuming centers are contained in a Special Report by the Editors of STEEL (p. 47).

STOCKPILING ACCELERATED— Voluntary allocations of nonferrous metals for stockpiling are under consideration and a program will be drafted soon (p.43). The move is part of a speed-up program for increasing the reserve supply of critical and strategic materials, necessitated by the international situation.

START NOW— Industrialists are being asked to start rounding up scrap at their plants now and not to wait for the opening of the new scrap drive early in December (p. 44).

NEW ENGINE, NEW PLANT— Attracting about as much interest as the new Olds V-8 high-compression engine is the layout of the new plant in which it will be produced (p. 69). Remarkably co-ordinated, the $10 million facility will include an array of elaborate transfer-type machine tool equipment, conveyor lines, fixtures and test stands, which will cut labor requirements sharply.

GOVERNMENT REORGANIZATION— Former President Hoover's program for reorganizing the federal government structure is receiving wide-spread and favorable attention (p. 64). One aim of Mr. Hoover's program is to lessen the drain on capital by lessening the tax burden. Another is co-ordination to eliminate or consolidate many of the independent bureaus.

BLAST FURNACE DISPUTE— Chattanooga's Wheland Co. has filed suit to break the government lease of a Cleveland blast furnace to Kaiser-Frazer Corp. and at the same time has asked the Department of Justice to disapprove the lease (p. 42). And Henry J. Kaiser has proposed that foundries and other pig iron users who fear they will lose their source of supply as result of the lease form a co-operative company to build a new blast furnace at Cleveland.

PIPELINES DRAIN STEEL—One large factor in the West Coast steel shortage is the tonnage required for long-range pipelines, in this country and abroad (p. 63). Were not a large proportion of western steel diverted to these needs, the scarcity would be alleviated.

HERE AND THERE IN INDUSTRY— Jones & Laughlin has expended $23 million, more than twice its net earnings, for expansion during the first half of 1948 (p. 72) . . . Columbia Steel will open its new sheet and tin plate mill at (p. 63) Pittsburg, Calif., next month . . . German steel output is gaining, reflecting American influence in rehabilitating the Ruhr (p. 67) . . . Donald F. Carpenter of Remington Arms is taking over the chairmanship of the Munitions Board (p. 64), succeeding Eastman Kodak's Thomas J. Hargraves . . . American Locomotive Co. at the end of 100 years in business (p. 43) has completed its conversion from steam to diesel-electric locomotive manufacture . . . Building costs will remain high for the next four or five years, a leading construction authority predicts (p. 41); he advises business and industry not to delay building needed facilities in hope of an early decline in costs . . . Industrial activity snapped back sharply after the Labor Day holiday (p. 74) but still is under the year's high.

Press operators know, if they are to prevent scoring and breakage when drawing steel, they must have sheets of *uniformly* high quality from shipment to shipment . . . sheets with uniform chemical composition, mechanical and surface characteristics . . . sheets uniformly free from laminations and surface defects. That's why they like steel stamped *Inland*. It's uniform and so is its performance! Special care is taken in every stage of production to make sure that the Inland steel shipped to them today is identical, in every respect, to the steel they received last week . . . and last year.

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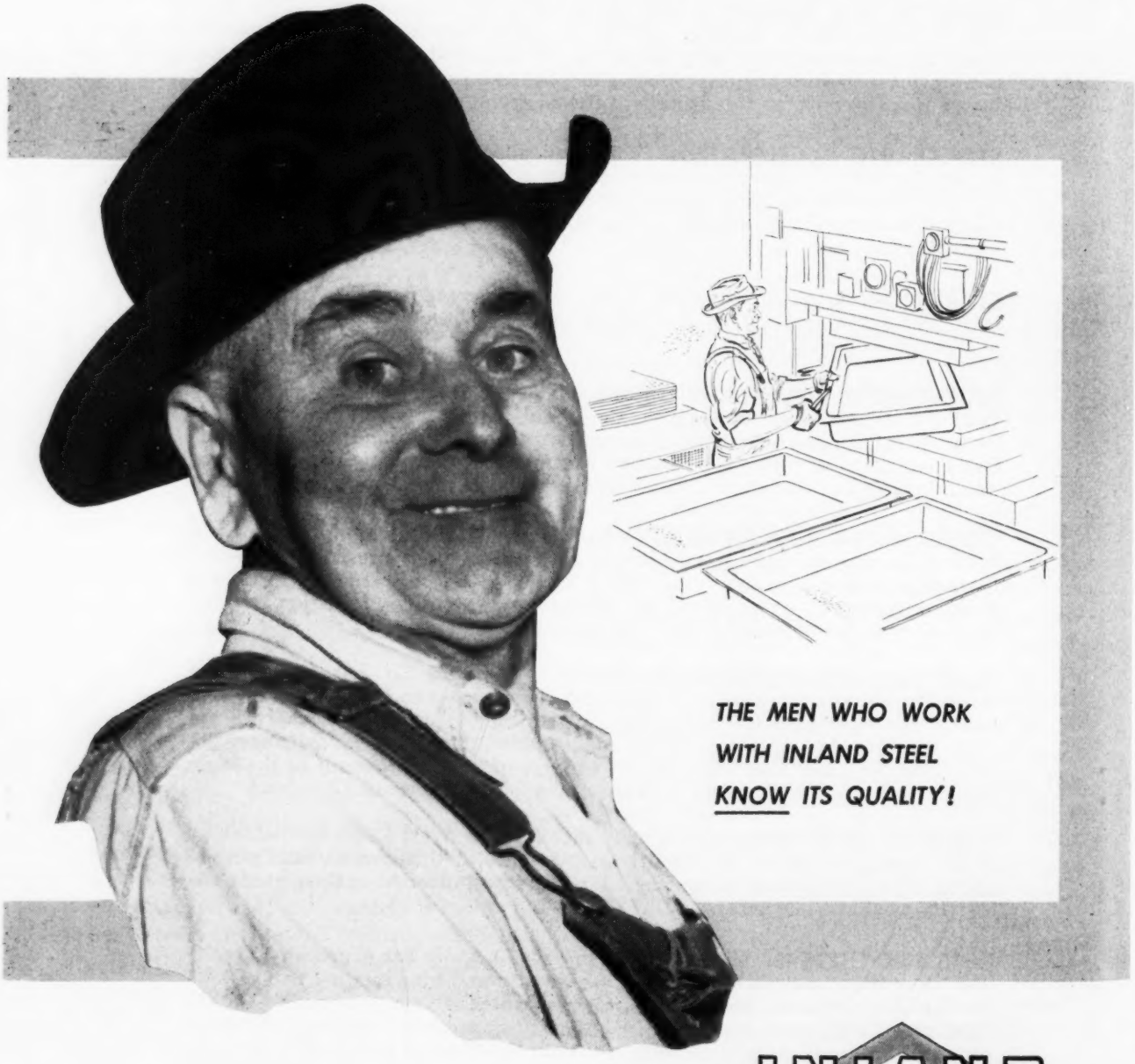

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Drive To Legalize Basing Point

Steel consuming companies hit by changeover in pricing practices to carry protests to Congress. Sawyer terms situation "critical" for little fellows

A DRIVE on Congress to legalize the multiple basing point pricing system, or at least to clarify the confusion presently surrounding pricing policies, is shaping up.

Impetus for the campaign is being supplied more by steel and cement consumers, intermediate fabricators, and by manufacturers who are uncertain as to how the recent court rulings will affect their pricing systems, rather than by the large producers of steel and cement.

Essentially it is a protest by smaller business, and especially those located some distance from the large producing centers.

Currently lacking organization, the drive is expected to accelerate as the Capehart committee hearings of the problem open and as more business men appraise the effects of the changes on their business. By the time Congress convenes, some observers believe hundreds of business men will be ready to voice strong protests against the mill pricing systems in effect in steel and cement.

Conference Topic — The changeover in pricing policies has been a top subject for discussion wherever business men and industrialists have met this summer.

Recently, wire rope manufacturers gathered at Chicago's Edgewater Beach hotel to talk over distribution problems under the new pricing setup. They fear that mill pricing may localize markets for wire rope and disrupt national distribution systems.

At Topeka, Kans., a conference is scheduled for Oct. 8 under the auspices of the Kansas Industrial Development Commission and the Chamber of Commerce to study the effects of the pricing changes on business and industry in that section and what can be done about the problem.

May Move Plant — New York Air Brake Co. says it may be forced to move its plant from Watertown, N. Y., to Pittsburgh unless the "delivered price" system is restored. In a statement before the Northern New York Federation of Chambers of Commerce, Lewis K. Sillcox, executive vice president of the company, said the mill pricing system made it impossible for the company to compete with firms located in Pittsburgh.

Other northern New York industrialists expressed similar views and passed a resolution calling on Congress to pass legislation reinstating legality of the basing point system.

Michigan's Department of Economic Development is launching a study into the effects of mill pricing on the state's industrial economy. For the next three weeks, trucks carrying steel into the state will be checked for tonnage, origin and destination and the results presented to the Capehart committee. State Chamber of Commerce is undertaking a survey of the effect of mill pricing on prices paid by Michigan consumers.

Cognizance of the development of the campaign was taken by Frank Purnell, president of Youngstown Sheet & Tube Co., who expects thousands of steel users, hard hit by the pricing change, to bring pressure on Congress for legislation to permit basing point pricing. Mr. Purnell believes the consumers have a good chance to be heard.

"If a few of us (producers) went to Washington to tell our story, we wouldn't get very far. But when thousands of steel customers raise their voices, they will get a hearing."

Prices Going Up—Possibly adding momentum to the campaign will be the linking of advancing prices for hard goods and the higher steel prices for some consumers resulting from the pricing change.

Last week General Electric Co. increased prices of refrigerators, ranges, water heaters, automatic washers and dryers. A week before a GE official had explained that the changeover in steel pricing methods had upped the company's steel costs by a half million dollars annually.

Sawyer Says: "Tell Congress"—Secretary of Commerce Charles Sawyer has urged all business men to present facts concerning the effect of the pricing changeover to the Capehart committee.

"I know that many firms, large and small, are worried about the impact which the decision (cement case) may have on their own pricing practices. . . . It is obvious that any extensive revision of pricing practices by industry will affect existing patterns of distribution . . . This could have severe repercussions upon smaller business enterprises which would be among the first to feel the effects."

Terming the matter "critical," Mr. Sawyer asked business men to make a survey and careful appraisal of the problem, to proceed cautiously, and see that Congress gets the facts.

FRANK PURNELL

. . . . *Little fellows will be heard*

U. S. May Call Canadians

CANADIAN steel consumers may be among witnesses to appear before the Capehart Senate Trade Policies

CHARLES SAWYER

. . . . *Give Congress the facts*

Committee when the latter starts its open hearings, probably around Nov. 15. As a result of the new method of mill pricing, Canadians are paying higher prices for American steel than they would pay if mills continued the old policy of absorbing freight to meet competitors' delivered prices. As is the case with home consumers in the same boat, they do not like it.

Will Answer Questionnaires

MAJOR steel producers indicated last week they would co-operate with the Martin steel subcommittee of the Senate Small Business Committee in supplying the steel distribution data requested in the committee's questionnaire.

The committee is asking for a detailed breakdown of shipments of leading steel products in 1940 and 1947 according to geographic area, according to affiliated steel-consuming companies and to affiliated and independent warehouses.

This information generally is considered confidential and has been closely guarded in the past. Some doubt was held as to whether the companies would divulge the data. However, the committee has pledged that individual returns will be held in the strictest confidence. A half dozen of the large producers last week said they would supply the information, and pointed out that the committee could subpoena their records should they refuse.

Protest Basing Point Ban

EIGHT manufacturers of corn products last week filed a statement with the Federal Trade Commission protesting banning of the basing point system of pricing in favor of f.o.b. mill pricing. They warned that requiring uniform net pricing in the corn products industry would promote monopoly and jeopardize midwestern labor and farm incomes

FTC Rests Steel Case

Prosecutor compliments steel men, but believes he proved collusion

FEDERAL Trade Commission last week rested its case against the steel industry's pricing policies. The FTC had attacked the legality of the multiple basing point system of pricing, a system generally dropped by the industry several months ago.

Examiner Frank Hier gave respondents until Oct. 22 to file motions to strike or limit exhibits and testimony and the commission until Nov. 4 to file arguments against these motions. Hier wants to decide on the motions by Nov. 15 and have the record in final form by that date.

In announcing that he was resting his case, Trial Attorney Lynn C. Paulson paid compliments to men of steel industry and their counsel for their conduct of the case and for the manner in which they have operated the steel industry which he termed "the key to the nation's future progress."

Paulson expressed confidence that he had proved that respondents acted together to suppress and limit competition. By quoting almost exclusively delivered prices made up of basing point price plus full railroad freight they deprived buyers of savings from truck and water transportation, said Paulson. The delivered prices, he said, were uniform for the whole industry.

Respondents also suppressed competition, Paulson said, by agreeing on extras and deductions. This system resulted in injury to competition, and thus against public interest. It contributed to centralization and discouraged industrial development in the nation as a whole. Under this system, said Paulson, the public paid a considerable amount each year for wasteful cross hauling.

Attorneys for steel respondents will probably not announce plans for their defense procedure until after they learn what evidence remains in the record after Nov. 15.

Hearings have been in progress since Jan. 12.

Industrial Employment Rises

EMPLOYMENT in nonagricultural establishments rose to the second highest total on record in mid-August. Gaining 440,000 over that of mid-July, the number of workers reached 45,514,000, only 100,000 below the alltime peak of last December.

The Bureau of Labor Statistics attributed much of this rise to expansion of seasonal activities, reopening of plants after vacation shutdowns, greater availability of materials, and a continuation of the generally rising trend prevailing since the end of the war.

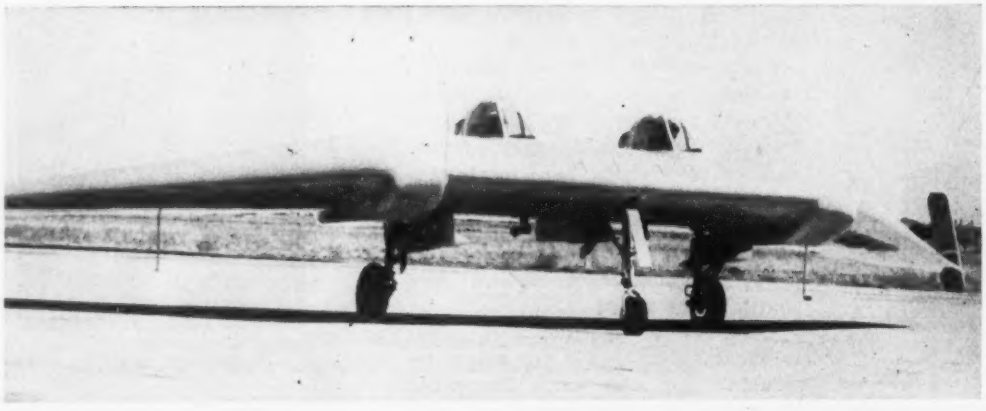
In the durable goods division, the iron and steel group accounted for the largest employment increase.

When Do Allocations End?

WHETHER the voluntary allocations programs will continue effective for six months after Public Law 395 expires next Mar. 1 was undecided in Washington last week. The Department of Commerce and its allocations arm, the Office of Industry Cooperation, have been proceeding in the belief that the Justice Department had ruled that agreements would continue for six months after the act expired, providing the law was not extended by the new Congress.

Last week, however, Attorney General Tom Clark said his department considered the six-month period following expiration of the law as a cleanup period rather than one during which the programs would continue fully effective.

Inasmuch as Clark's statement is somewhat indefinite, Secretary of



TAILLESS GLIDER: Similar in appearance to the USAAF Northrop flying wing is this Canadian-built NRC tailless glider, shown returning from extensive flight research tests, including a 2400-mile towed flight. NEA photo

Commerce Charles Sawyer last week was pressing for a more definite statement of the Justice Department's interpretation of the law.

Unless the Commerce Department obtains a satisfactory assurance from Clark it will have to place an early cutoff date on new allocations programs, due to the necessity of enabling steel mills to schedule such commitments ahead of time.

A larger question is whether allocations program already approved will continue in effect after Mar. 1 or whether the allocations beneficiaries then will have to make their own procurement arrangements with the mills.

An overall question, of course, is whether Congress will extend the law.

Building Costs Stay Up

Construction executive says no break in sight; advises against building delay

NO DROP in building construction costs is in sight.

So, any industrial structure that can be used profitably should be placed under contract without further waiting.

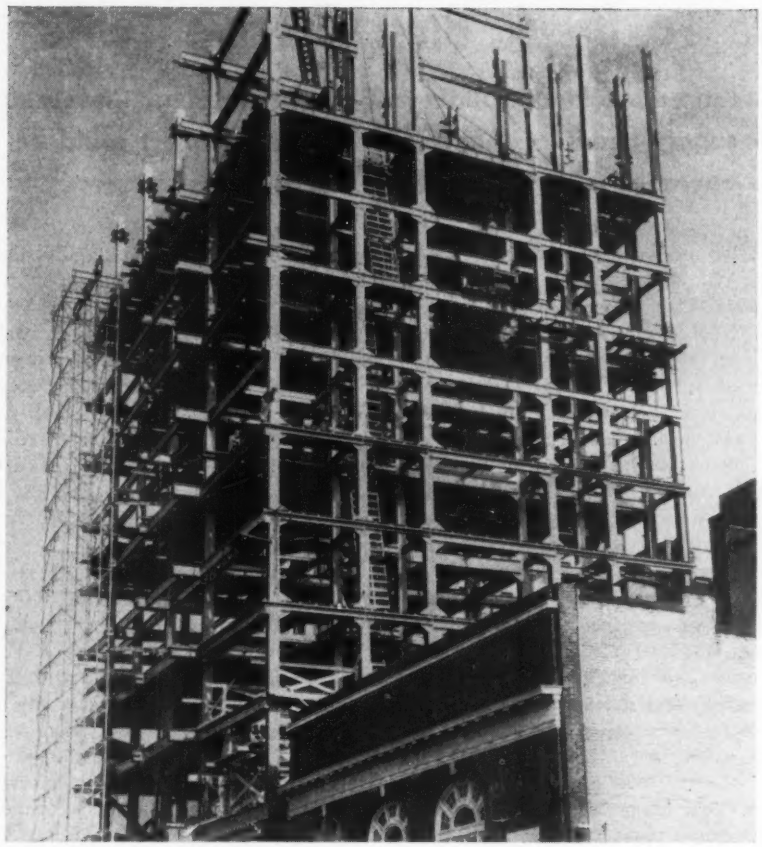
That's the advice being given the clientele of Turner Construction Co., New York, said the firm's vice president, J. P. H. Perry, in an address there recently.

"Our judgment," he pointed out, "is that building costs are not likely to come down in the immediate future or to come down by more than 10 per cent at any time within the next five-year period, subject of course to war or a great depression. Beyond five years we don't attempt even to dream.

Don't Wait—"We are advising our clientele," Mr. Perry revealed, "that if they can make money with a new industrial building or if they must have more space in an office building, hotel, school, hospital or other building they might as well make up their minds to get the job under contract as quickly as possible. To wait for a break in the cost of buildings may be a long wait," he suggested.

Looking into the future, Mr. Perry said: "If a break comes in the next four or five years, our guess is that it will be moderate in its extent and of short duration."

One reason he gave for his belief that building costs will remain high is the huge backlog of unsatisfied building and general construction demand in the country today. He quoted a recent estimate in a construction publication that the backlog of proposed construction amounts to more than $42 billion, equivalent of approximately six years of construction at the present high rate of activity.



Demand for steel and metal products for new construction will remain strong if advice of a well-known construction firm is followed. Foreseeing no drop in construction costs, the company, in advising its clients, recommends that any structure that can be used profitably should be built without further waiting

Birth Rate Increasing — Another factor cited as contributing substantially to the demand for construction, thus tending to keep construction costs high, is the country's increasing birth rate. The population, Mr. Perry declared, is more than five years ahead of all prewar predictions. Prewar birth rates were at the rate of 2,200,000 a year and this year it is estimated there will be more than four million births, he stated. "This great increase in population," he declared, "will require enormous expenditures for housing and for buildings for purposes of education, amusement, hospitalization, transportation of all kinds and for industrial output of every type to take care of the country's needs."

Such an expansion could be expected to produce a sizable demand for structural steel, cast iron pipe and the vast number of other products the metalproducing and metalworking industry provides for the construction, equipping and furnishing of buildings and houses.

New Spring Plant Opened

FORMAL OPENING of Hunter Spring Co.'s new plant in Lansdale, Pa., last week completed a two-year program of expansion, refinement and modernization of facilities and improvement of services.

The new brick and steel plant at No. 1 Spring avenue and designated as Plant 2 covers 35,000 square feet and places all of the basic production operations, such as coiling, grinding, heat treating, finishing, plating, inspection and engineering departments in one building, along with the general offices. Production capacity is reported increased at least 50 per cent.

The company's old Plant 3 has been converted wholly into a warehouse, and Plant 1 now houses metal stamping operations, tool and die shops, spring products assembly, and the apparatus division which manufactures instruments for precision testing of springs.

Sue To Break Blast Furnace Lease

Kaiser proposes building of second stack at Cleveland to supply needs of foundries. Suggests project could be co-operative undertaking of pig iron users

SUIT to break a government lease of a Cleveland blast furnace to Kaiser-Frazer Corp. has emerged from the tempest which has raged the past several weeks over disposition of the stack.

The court action was one of two steps taken last week by the Wheland Co., Chattanooga, Tenn., builders of sawmill machinery and oil well drilling equipment as well as being operator of one of the nation's largest production foundries, to block the leasing of the government-owned blast furnace to K-F.

The Wheland Co., which recently through widespread advertising in magazines and newspapers asked the public to insist on cancellation of the lease, filed its suit in Federal District Court, Washington. The suit asked that disposal of the government-owned blast furnace to K-F be declared null and void and that War Assets Administrator Jess Larson be ordered to offer the furnace again for sale or lease and allow all interested parties, including Wheland to submit bids.

Other move of the Wheland Co. was the requesting of Attorney General Tom Clark to disapprove a long-term lease of the furnace on the grounds of being in violation of antitrust laws.

The Wheland Co. contends it had been assured of an opportunity to bid on the furnace before it was disposed of, but that it never got this chance. After learning of the lease to K-F, the Chattanooga company offered to exceed the auto firm's bid by $100,000.

Kaiser Defends Lease—Defending the lease under which K-F would get the furnace now operated by Republic Steel Corp., Cleveland, Henry J. Kaiser, K-F chairman, wired a proposal to President Truman that foundrymen and other customers who fear their pig iron supplies will be cut off if Republic loses the stack form a co-operative company to lease or build their own blast furnace. Mr. Kaiser said his steel organization is making studies which already indicate the feasibility of foundrymen financing and operating their own new furnace. Furthermore, he offered to provide such a co-operative the services of his engineering and operating personnel to facilitate speedy construction and operation of one or more such furnaces.

Mr. Kaiser also suggested two other means of preventing hardships to Republic Steel Corp.'s own pig iron customers: 1. Construction by Republic of a new blast furnace; and 2. request by the government that Republic supply its pig iron customers out of some of the government-built iron and steelmaking facilities which Republic is now operating.

Concerning the first of those two suggestions, Mr. Kaiser said K-F had agreed to permit Republic to operate the Cleveland furnace for K-F for eight months from Sept. 1 so that Republic could supply its own pig iron customers while building a new furnace. This period, he declared, has been demonstrated as adequate in which to construct a blast furnace.

Founders Dubious — As to Mr. Kaiser's suggestion of a foundrymen's co-operative blast furnace, R. L. Collier, executive secretary of the Gray Iron Founders' Society, Cleveland, was dubious but, he pointed out, it is up to the foundrymen to decide. Mr. Collier added that if Mr. Kaiser would send him a detailed plan for building and operating such a furnace, and if the Gray Iron Founders' president approved, he would poll the society's members as to their reaction to the idea.

Switch to Foundry Iron

TENNESSEE Products Corp., Nashville, will discontinue output of ferromanganese at its Rockwood furnace in December and devote the stack to producing foundry iron. Company has two furnaces at Rockwood, one of which is being held in standby condition due to coke shortage.

High demand for foundry iron and an unfavorable competitive situation on ferromanganese, resulting from furnace pricing on shipments to northern states, are major reasons for switching to foundry iron. Production is expected to be 7500 to 9000 tons monthly. Company has made commitments for Brazilian ore to operate the stack.

Society Establishes Award

INDIVIDUALS rendering outstanding service to the industry will be honored with a gold medal presented by Gray Iron Founders' Society, Cleveland. First award of the gold medal will be made at the 20th annual meeting of the society in Atlantic City, N. J., on Oct. 14-15. Individuals receiving the award will also be presented with a bronze replica and an illuminated scroll.

Members of the society's committee on citations and awards, under whose recommendation the medal was instituted are: C. R. Culling, Carondolet Foundry Co., St. Louis, chairman; A. C. Denison, Fulton Foundry & Machine Co., Cleveland; H. L. Edinger, Barnett Foundry & Machine Co., Irvington, N. J.; C. J. Miller, Fremont Foundry Co., Fremont, O., and W. L. Seelbach, Superior Foundry Co., Cleveland.

Steel Expansion Urged

Westinghouse executive says more facilities needed to care for expanding demand

STEELMAKING facilities must be expanded to meet constantly increasing demand even though the industry is operating at a record rate of 90 million ingot tons annually, Andrew H. Phelps, vice president, Westinghouse Electric Corp., Pittsburgh, said last week at Virginia Beach, Va., addressing a meeting of Maryland Utilities Association.

Steel shortages have restricted expansion of many businesses and forced others to close, he said, insisting that while some of the steel shortages are temporary, many of them, in his opinion, will continue for several years.

Allocations Bite Hurts—After the voluntary allocation programs have taken their bite out of the available steel supply, Mr. Phelps said what is left is channeled to manufacturers, who, with this reduced tonnage, are trying to take care of goods required by an increasing population, normal replacement of worn-out facilities, new products and devices resulting from technological improvements.

In his opinion the allocation programs defeat free flow of business in the American way.

He warned that since 1932 domestic industry and military requirements have been consuming copper at a rate which, if continued, will in the near future put the country in the position of a have-not nation in the red metal. To conserve the country's unmined supply of copper he suggested that the European recovery program be used to import the metal.

Stockpiling Speed-up

Voluntary allocations program for nonferrous metals for reserve stock to be drafted

REFLECTING a speed-up in stockpiling of critical and strategic materials as a result of a worsening of international conditions, a program of voluntary channeling of copper, lead and zinc to the national stockpile will be drafted soon.

Details of the program are to be worked out in a meeting to be held in Washington early in October under sponsorship of the Commerce Department. To be represented at the meeting will be all domestic sources of the three metals, together with representatives, or their United States agents, of foreign producers. The latter will include producing companies in Chile, Peru, Mexico, Canada and Australia.

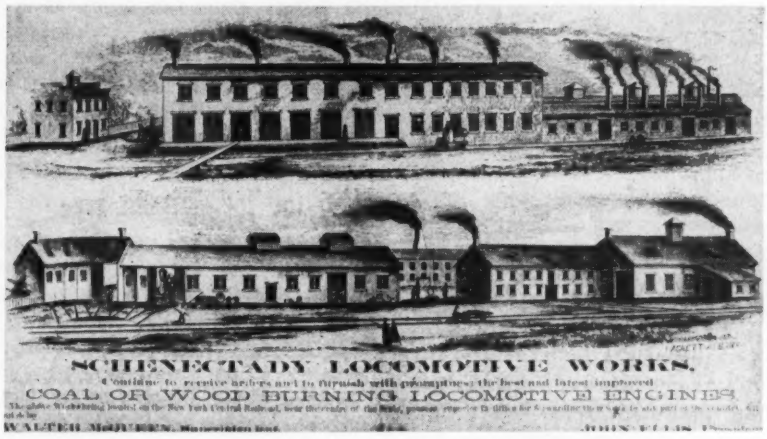
Stockpiling will mean industry will find these nonferrous metals in even shorter supply than they are now. Because of the domestic and world scarcity of copper, lead and zinc, the U. S. government has not been vigorously pressing for supplies of them for the stockpile, although any metal offered would be accepted. Withdrawal of supplies of the three metals in any sizable quantities would aggravate the current tight supply conditions, particularly in lead and zinc where strikes have substantially reduced production.

Part of Speed-up Program—A voluntary allocation plan to increase the flow of copper, lead and zinc to the national stockpile comes under one of four speed-up policies adopted recently by the Munitions Board, the stockpiling agency. Other three policies are acceleration of the transfer of materials from government agencies to the stockpile, expediting of purchase procedure by purchasing any material needed for the stockpile unless the purchase is of such magnitude as to contribute to inflation or threaten serious injury to the national economy, and acceptance of the entire output of a new development or expansion resultant from a long-term stockpile purchase contract.

Out of Balance—Existing stockpiles, the Muntions Board says, are still badly out of balance, although the situation has improved in the last six months and is steadily showing improvement.

Ingots from Acid Electrics

DETROIT Steel Casting Co., Detroit, has begun melting low-carbon rimmed steel in two of its three acid electric furnaces for subsequent pouring into ingots and rolling into sheet and strip at outside mills. Ingots are 6-ton size and constitute a single heat, furnaces currently being operated on a two-shift basis. Use of acid electrics for conversion work of this type is unusual but apparently successful, with sulphur and silicon being held to low limits.



SCHENECTADY PLANT AS IT APPEARED IN 1864

American Locomotive Celebrates Centennial

AMERICAN Locomotive Co.'s 6500 employees paused only briefly last weekend to celebrate their company's centennial, then returned to their jobs of building more diesel-electric locomotives. After 100 years as a dominant builder of steam locomotives, Alco is now completely out of the steam business and all of its 112-acre installation is converted to diesel manufacture. It accounts for 40 per cent of diesel-electric output and is second only to General Motors Electro-Motive Division.

Coincident with the observance of Alco's centennial, Robert B. McColl, president of the company, celebrated his 50th anniversary in the locomotive business.

Alco got its start in 1847 when the Schenectady Locomotive Engine Manufactory was formed with $50,000 capital. A little more than a year later, the company produced its first locomotive, the "Lightning," a 15-ton job with 84-inch drivers. Early locomotives produced by the company sold for an average of $7500.

In 1901, the Schenectady plant became the backbone of American Locomotive Co. through a consolidation with seven other shops.

In recent decades, Alco has been co-operating with its neighbor in Schenectady, General Electric, in the application of electricity to locomotives. They built a straight electric locomotive in 1904 and a diesel-electric in 1924.

Diesel-electrics really came into their own only after World War II. In 1946, three-fourths of Alco's production was steam locomotives, and one-fourth diesel-electric. In 1947, this ratio was about reversed, and earlier this year, Alco announced completed conversion to diesel-electrics.

AERIAL VIEW OF ALCO PLANT AT SCHENECTADY TODAY

"Don't Wait!"

"Get scrap out ahead of December campaign," government consultant urges

PLANT MANAGERS should start housecleaning at once without waiting for the gun which will officially open the proposed scrap drive in December, says Alex Miller, scrap consultant of the Office of Industry Cooperation, and the government's top scrap man.

"Nobody should assume that he has no scrap," Mr. Miller told STEEL. "I do not think there is a shop in the United States that does not have obsolete tools, dies, jigs and fixtures and some machinery for which there is no further use.

"In a recent drive at Rochester, N. Y., the Eastman Kodak Co., which believed it had no scrap, made a conscientious try, and within a month had produced and shipped 88 carloads of scrap.

"If we get a million tons out of this drive—and I do not think that is an extravagant estimate—it will make a big difference in the steel supply situation," Mr. Miller said. "With a million tons added to their other scrap supply, the steel mills will be able to operate through the winter on full production schedules, with the result that the supply of finished steel products will be increased by at least a million tons."

Whether or not rubble scrap starts flowing from Germany to the United States in large volume in the near future depends on the formation of the corporation whose organization the Department of Commerce is fostering; it would be recognized by Gen. Lucius Clay as the exclusive United States scrap buying agency in Germany. Commerce officials feel hopeful the Department of Justice will sanction the formation of such a corporation, but in the meantime, Justice officials, as usual, are refusing to make any comment as to what action they will take—or when. In the meantime, Commerce expects to announce shortly the membership of a scrap industry committee which will work with it in the plans for the proposed corporation. Roughly a combination is visualized where the capital will be raised by 1000 scrap dealers putting up $1000 each.

The plan calls for OIC allocation of scrap on the basis of need. As the picture looks now, it seems likely the bulk of German scrap imports bought by the corporation — assuming Justice permits the formation of the corporation—will be allocated to consumers at or within gunshot of eastern seaboard. That would take eastern consumers out of the domestic market to an extent and thus leave more scrap available for inland consumers. There is no likelihood that any of the German scrap would go to the Pacific coast which is reported in better shape on scrap than the rest of the country. It seems sure that New England foundries will get some sort of special consideration in view of the shutting down, in July, of the Mystic blast furnace.

Looking for German Scrap

DISTURBED by the recent statement of Paul Hoffman, ECA administrator, that probably not more than a million tons of scrap at most could be exported from Germany to the United States over the next 12 months, Congressman W. Kingsland Macy (Rep., N. Y.), chairman of the Gray Market Subcommittee of the House Public Works Committee, is planning a series of hearings, probably to be held in October, to air the whole matter of German scrap.

Mr. Macy feels that, after two years of conversation about the matter, it is high time for German scrap to come here in volume, and, with recent estimates that the quantity of rubble scrap in Germany is at least 15 million tons, he wants to know why a limit of one million tons should be set on the portion of this scrap to come to the United States.

This investigation may have some interesting repercussions since Mr. Hoffman based his remark about one million tons over the next year on the administration policy of getting increased production of steel in Germany in order to keep European steel demand on the United States at minimum. Mr. Hoffman wants sufficient scrap held in Germany to support increased steel production there.

Du Pont Producing Titanium

ANNOUNCEMENT by E. I. du Pont de Nemours & Co. that it is producing 100 pounds of pure titanium per day at its new plant at Newport, Del., is a welcome development to the Bureau of Mines, according to Oliver Ralston, chief of the Metallurgical Branch. The Bureau of Mines has been supplying small lots of pure titanium for experimental purposes but its output at Boulder City, Colo., has never been in excess of 150 pounds a week and of late the armed services have been taking all that the Bureau of Mines can produce.

The bureau for several years has been studying titanium, plentiful in the United States, as a substitute for stainless steels in order to conserve on nickel and chromium. Du Pont will be able to supply most of its output for experimental purposes; such demand has been getting heavier. While the current price of pure titanium is $5 a pound, from present small-scale facilities, this price could be reduced considerably on the basis of volume production in a large plant.

Sees No Rise in Military Costs

RECENT ESTIMATES by certain magazine writers that United States military expenditures might be upped to as much as $28 billion for the fiscal year 1950 are groundless—as far as the Truman administration is concerned. James E. Webb, director of the budget, has released this statement:

"The President has determined, pending a more thorough evaluation of our military requirements and their relationship to our resources, that the authority for new obligations for national defense, including stockpiling of critical and strategic materials, public works construction, ship construction, special programs and any items for which it is planned to propose legislation for fiscal year 1950 shall be limited to $15 billion. It is expected that the National Military Establishment will proceed forthwith to develop a balanced military program and a budget for 1950 within this amount. If necessary, consideration will be given to an adjustment in this base at a later date if changes in the international situation appear to warrant such action."

Goes To Limit in Research

THE AIR FORCE has committed itself for the entire $225 million which Congress gave it for research and development work during the fiscal year ending next June 30. Approximately 80 per cent will go to private organizations, 15 per cent to civilian employees of the Air Force, and 5 per cent for purchase of testing equipment.

The Air Force is engaged in intensive basic research to uncover fundamental data which will lead to future development contracts; it has 226 basic research contracts with 57 educational and nonprofit institutions. In addition, the Air Force gets the benefit of research and development work of the National Bureau of Standards, Army Ordnance Department, Chemical Corps, Bureau of Mines, the Navy's Bureau of Aeronautics and the National Advisory Committee for Aeronautics.

Tool Orders Stacked High

But European dealers cannot clear desks due to unsympathetic attitude of governments

FOREIGN dealers have orders for American tools stacked high on their desks, but foreign governments have a surprisingly unsympathetic attitude toward releasing funds and permits to make those orders materialize.

That's the opinion of A. G. Bryant, president, National Machine Tool Builders' Association, speaking at the 24th annual meeting of the American Machine Tool Distributors' Association in Detroit, Sept. 16 and 17.

Mr. Bryant, who also is vice president, Cleereman Machine Tool Co., Chicago, just returned from Europe, where, in association with several other representatives of the American machine tool industry, he held conferences with European industrialits and ECA officials.

Playing Politics—European governments are playing politics on the level of ward politicians by spending freely for things which "satisfy immediate appetites" rather than making for long-range recovery, Mr. Bryant told the machine tool dealers. He said the governments abroad are dealing with palliatives rather than correctives.

Attendance at the 2-day convention consisted of 116 representatives of 69 member companies of the association and about 50 guests.

Highlights of the Sales Refresher Course, held at Cornell University, July 12-23, under joint sponsorship of the Builders and Dealers associations, were reviewed at the opening session of the meeting. This included a panel discussion led by Robert L. Giebel, participated in by J. W. Scott, president, Van Norman Co., Springfield, Mass., on "Responsibilities of Distributors to Builders"; George Habicht Jr., president, Marshall & Huschart Machinery Co., Chicago, on "Responsibilities of Builders to Distributors"; R. A. Vidinghoff, vice president, Swind Machinery Co., Philadelphia, on "The Sales Engineer's Daily Activities"; and Thomas R. Rudel, president, Rudel Machinery Co. Inc., New York, on "What Does It Cost To Sell?"

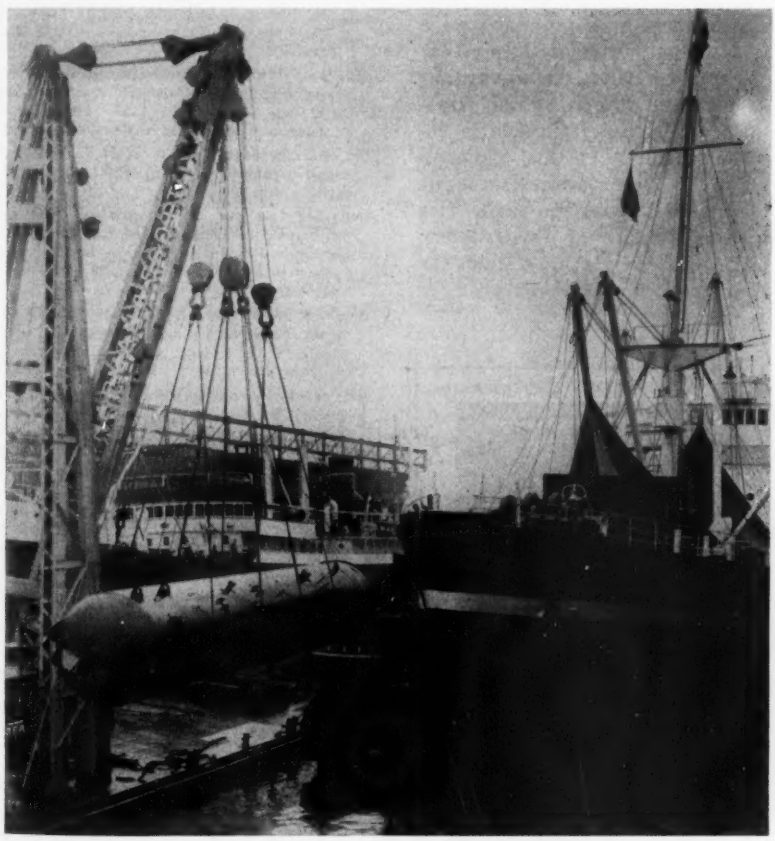
Co-ordinate Activities — These discussions brought out that builders and dealers must co-ordinate their activities as thoroughly as the production line and sales departments of automobile builders. Not only must a steady flow of machines and information pass from builders to distributors, but also information on users' needs and general market conditions must flow back from distributors to builders. Also, careful consideration must be given this information in planning designing and tooling activities.

At the banquet Harvey Campbell, executive vice president, Detroit Chamber of Commerce, drew a picture of how the automobile industry in Detroit developed originally in the best traditions of "free enterprise," and Hon. Howard A. Coffin, representative from Michigan, described the trials and achievements of a practical business man in politics. He pointed out that government has become the greatest of all "big business" in this country and only through good business principles can it be made to serve the people to best advantage.

Sees Good Business—The machine tool distributors were told by Burnham Finney, editor, *American Machinist,* speaking at the second day's session, that at least 9 months more good business for the machine tool builders was in prospect. He said that while some consumer goods are facing a buyers' market, the Defense Program, European Recovery Program, etc., are giving business big "shots in the arm" and at the same time are accentuating material shortages.

At the close of the meeting officers for 1948-49 were announced as follows: President, Robert L. Giebel, president, Giebel Inc., New York; 1st vice president, O. W. Johaning, president, Colcord-Wright Machinery & Supply Co., St. Louis; 2nd vice president, E. B. MacDonald, manager, Machine Tool Division, Syracuse Supply Co., Syracuse, N. Y.; secretary-treasurer, C. C. Brogan, president and treasurer, W. E. Shipley Machinery Co., Philadelphia.

Spring meeting of the association will be held Apr. 11 and 12 at the General Oglethorpe Hotel, Savannah, Ga., while the fall meeting, Oct. 27 and 28, will be held at the Edgewater Gulf Hotel, Edgewater, Miss.



HEAVYWEIGHT: Weighing 350,000 lb, a piece of oil refinery equipment manufactured by M. W. Kellogg Co., Jersey City, N. J., and destined for England is swung aboard ship at New York. The largest floating derrick in New York harbor was required for loading the cylindrical unit 72 ft long and 14 ft in diameter

To Finance Machinery Buyers

WHILE the capital equipment needs of European industry have not yet been put in such form that they can be acted on now, the Economic Cooperation Administration definitely

will finance large purchases in this category.

Purpose is to increase man-hour productivity, particularly in the United Kingdom and France where there is full employment and where the only way to increase production is to increase productivity. In many British plants, for example, man-hour productivity is only 20 per cent of what it is in the same industries in the United States. Several manufacturers of production equipment, including a number of machine tool manufacturers, recently have been studying British and French prospects as customers for certain types of American machinery which can be used advantageously.

Machine Tool Orders Decline

NEW ORDERS for machine tools declined slightly in August from July, and shipments rose.

August's new orders, according to the National Machine Tool Builders Association, Cleveland, were 73.6 per cent of the 1945-46-47 average, compared with 74.0 per cent in July. Only month lower this year than August was May with 73.5 per cent. New foreign orders also receded, being 12.7 per cent of all new orders, compared with 13.3 per cent in July.

Shipments rose in August to 69.2 per cent of the 1945-46-47 average, compared with 62.4 per cent in July. Consequently, ratio of unfilled orders to shipments declined from 5.9 to 1 in July to 5.2 to 1 in August.

Blastola To Be Sold

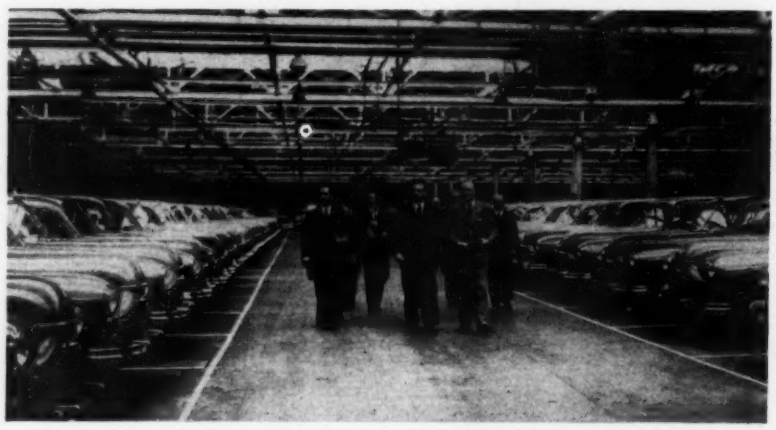
EXPERIMENTAL Blastola melting furnace, a cross between a cupola and blast furnace, installed during the war at Rotary Electric Steel Co., Detroit, but never operated successfully, will be dismantled and sold under supervision of the Chicago office of the War Assets Administration.

Equipment was built with government funds and if the cost of dismantlement is less than the salvage value, proceeds will be turned over to the WAA; if the reverse is true the company has agreed to pay any excess dismantling cost. Originally it had been planned to melt down alloy turnings in the Blastola and charge the resultant hot metal in electric furnaces, with the idea of retaining alloy content and lowering meltdown costs. Repeated efforts to make the equipment function properly, however, were unsuccessful.

Meanwhile Rotary Electric has purchased a number of small buildings and equipment, built on its property during the war and covering an area of 56,200 sq ft, for $250,000. They will be integrated with present facilities, at present largely devoted to production of ingots and sheet bar on conversion arrangements with fabricators.

Progress in Railroading

GREATER riding comfort for railroad passengers was promised as a result of a final series of tests of car trucks, wheel balance, tread contour and track gage staged by the Association of American Railroads in cooperation with Budd Co., Philadelphia, and the Pennsylvania Railroad. Members of the press and radio were recently taken on a 12 mile test run out of Coatesville, Pa., in a Budd Co. research car for a demonstration of this advancement.



STANDARDIZED: Concentrating on one-model production, the Standard Motor Co., Coventry, Eng., is enabled to boost production to 1000 cars weekly. The 6-cylinder units, with a cruising speed of 65 miles an hour, will sell for $2500 in the United States. Photo shows G. R. Strauss, British Minister of Supply, walking down an avenue of the new cars at the Standard plant. NEA photo

Meetings . . .

Sept. 28-30, Porcelain Enamel Institute: Institute is one of sponsors of first international congress on porcelain enameling, London. Institute headquarters are at 1010 Vermont Ave., N. W., Washington.

Sept. 28-30, Association of American Railroads: Convention, Antlers Hotel, Colorado Springs, Colo.

Sept. 28-Oct. 1, Association of Iron & Steel Engineers: Annual convention and exhibition, Public Auditorium, Cleveland. Association headquarters are at 1010 Empire Bldg., Pittsburgh.

Sept. 29, American Iron & Steel Institute: Regional technical meeting, Hotel Cleveland, Cleveland.

Oct. 1-2, Southern Ohio Section of Open Hearth Committee, Iron & Steel Division and Ohio Valley Section, AIME: Annual fall meeting, Deshler-Wallick Hotel, Columbus, O.

Oct. 4-7, American Institute of Steel Construction Inc.: Twenty-sixth annual convention, Chateau Frontenac, Quebec, Canada. Institute headquarters are at 101 Park Ave., New York.

Oct. 4-7, Industrial Packaging Engineers Association and University of Illinois: First annual industrial packaging and materials handling short course, Sherman Hotel, Chicago. Association headquarters are at 20 W. Jackson Blvd., Chicago.

Oct. 5-7, Industrial Packaging Engineers Association: Show at Hotel Sherman, Chicago. Association headquarters are at 20 W. Jackson Blvd., Chicago.

Oct. 5-7, American Institute of Electrical Engineers: Middle eastern district meeting, Washington. Institute headquarters are at 33 W. 39th St., New York.

Oct. 5-7, Materials Handling Institute: Regional materials handling exposition, Mechanics Hall, Boston. Institute secretary-treasurer is R. Kennedy Hanson, 1108 Clark Bldg., Pittsburgh.

Oct. 5-9, Concrete Reinforcing Steel Institute: Twenty-fourth semi-annual meeting, Grove Park Inn, Asheville, N. C. Institute headquarters are at 38 S. Dearborn St., Chicago.

Oct. 6, American Iron & Steel Institute: Regional technical meeting, Hotel Stevens, Chicago.

Oct. 6-9, Society of Automotive Engineers: Aeronautic meeting and aircraft engineering display, Biltmore Hotel, Los Angeles. Society headquarters are at 29 W. 39th St., New York.

Oct. 7-8, Society for Advancement of Management: Fall training conference at Illinois Institute of Technology, Chicago. Society headquarters are at 20 N. Wacker Dr., Chicago.

Oct. 11-13, American Society of Tool Engineers: Semi-annual convention, Biltmore Hotel, Los Angeles. Society executive secretary is Harry E. Conrad, 1666 Penobscot Bldg., Detroit.

Oct. 11-13, National Lubricating Grease Institute: 16th annual convention, Edgewater Beach Hotel, Chicago. Institute headquarters are at 4638 Mill Creek Parkway, Kansas City, Mo.

Oct. 12-13, Packaging Machinery Manufacturers Institute: 16th annual meeting, Hotel Roosevelt, New York. Institute headquarters are at 342 Madison Ave., New York.

Oct. 12-16, Chicago Section of American Chemical Society: Fifth national chemical exposition, Chicago Coliseum, Chicago. Exposition manager is Marcus W. Hinson, 1513 S. Wabash Ave., Chicago.

Oct. 13-15, American Society of Civil Engineers: Fall meeting, Statler Hotel, Boston. Society headquarters are at 33 W. 39th St New York.

Oct. 13-15, Porcelain Enamel Institute: Tenth annual forum, at University of Illinois, Urbana.

Oct. 14, American Iron & Steel Institute: Regional technical meeting, The Warwick, Philadelphia.

Oct. 14-16, Foundry Equipment Manufacturers' Association: Meeting, Hot Springs, Va.

STEEL
A PENTON PUBLICATION
SEPTEMBER 27, 1948

A Guide to

The Steel Industry's New Pricing System

A Special Report by the Editors of
STEEL
Penton Bldg., Cleveland 13, Ohio

. . . what it means to consumers

. . . prices quoted by steel companies

. . . freight rates to consuming points

SINCE July, this year, the iron and steel industry has been in the throes of a pricing revolution.

For more than half a century steel had been sold on a basing point system. First, the single basing point method (Pittsburgh Plus) was used, and, after 1924, multiple basing points.

Generally accepted in the trade as the most feasible, efficient and equitable method of selling steel products competitively on a nation-wide basis, the basing point system, in one form or another, proved its practicality and utility through the years and became firmly rooted in the industry.

Under it, creation of local monopolies was prevented, and expansion of the industry was fostered in step with the increasing steel requirements of the country as new consuming areas developed.

Bolt From the Blue — Then, like a bolt from the blue, the steel producers in July suddenly threw multiple basing point pricing overboard, instituting in its stead a method of quoting prices at the mill, or exact point of production.

The action was taken reluctantly by the steelmakers and only after sober study of the pricing problem stemming from adverse rulings of the Federal Trade Commission and decisions of the U. S. Supreme Court (Glucose cases, Cement case, Conduit case) which placed all basing point pricing, zone pricing, uniform delivered pricing and systematic freight absorption in the shade of illegality.

Such a revolutionary change by a traditionally conservative industry, naturally has given rise to consternation and dismay among steel consumers over the nation. Nothing in previous steel pricing history has so rocked the markets, threatening, as it does, production, distribution, price and procurement problems undreamed of heretofore.

First Shock Passed — While the first shock of the change has passed, so alarming are its portents for the future, including wholesale migration of manufacturing plants and creation of ghost towns, the halls of Congress today reverberate with the clamor of business men, industrialists and labor leaders for legalization of basing point and similar pricing, and clarification of the position of sellers, not only of steel but hundreds of other products, with respect to the legality of freight absorption in competing for business.

This, it is insisted, is necessary to avert chaotic dislocations in the national economy, especially in the steel and metalworking industries which account for 40 to 45 per cent of the nation's total manufactured goods output in dollar value, and provide jobs for approximately 40 per cent of the gainfully employed in the manufacturing industries.

Objections Listed — Almost without exception steel industry executives view the change in pricing method as a backward step, and this view is being increasingly accepted among consumers. The steel men maintain that abandonment of basing point pricing will:

1—Encourage local monopolies in the sale of steel.

2—Restrict competition between the steel producers.

3—Force the closing and relocation of some steel mills and fabricating plants.

4—Limit development of low cost production and distribution.

5—Deny consumers a free choice of suppliers.

6—Lead to geographical concentration of industry.

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Company and mill points shown. All listed prices are in cents per pound unless otherwise noted.

INGOTS, CARBON, Forging

	Net Ton
Carnegie-Illinois Steel Corp., Munhall, Pa.	$50

INGOTS, ALLOY

Carnegie-Illinois Steel Corp., So. Duquesne, Munhall, Pa.	$51
Pittsburgh Crucible Steel Co., Midland, Pa.	$51

BILLETS, BLOOMS & SLABS, CARBON, Rerolling

Alan Wood Steel Co., Conshohocken, Pa.	$62
Bethlehem Steel Co., Johnstown, Pa.	$52
Carnegie-Illinois Steel Corp., Munhall, So. Duquesne, Braddock, Clairton, Pa.; So. Chicago, Ill.; Gary, Ind.	$52
Pittsburgh Steel Co., Monessen, Pa.	$66
Tennessee Coal, Iron & Railroad Co., Ensley, Fairfield, Ala.	$52

BILLETS, BLOOMS & SLABS, CARBON, Forging

Alan Wood Steel Co., Conshohocken, Pa.	$68
Bethlehem Steel Co., Johnstown, Pa., Lackawanna, N. Y.	$61
Carnegie-Illinois Steel Corp., Munhall, So. Duquesne, Braddock, Clairton, Pa.; So. Chicago, Ill.; Gary, Ind.	$61
Geneva Steel Co., Geneva, Utah	$61
Inland Steel Co., Indiana Harbor, Ind.	$61
Republic Steel Corp., So. Chicago, Ill.; Buffalo, N. Y.; Cleveland, Canton, O.	$61
Tennessee Coal, Iron & Railroad Co., Ensley, Fairfield, Ala.	$61

BILLETS, BLOOMS & SLABS, ALLOY

Alan Wood Steel Co., Conshohocken, Pa.	$70
Bethlehem Steel Co., Bethlehem, Johnstown, Pa.; Lackawanna, N. Y.	$63
Carnegie-Illinois Steel Corp., So. Duquesne, Munhall, Pa.	$63
Pittsburgh Crucible Steel Co., Midland, Pa.	$63
Republic Steel Corp., Buffalo, N. Y.; So. Chicago, Ill.; Canton, Massillon, O.	$63
Timken Roller Bearing Co., Canton, O.	$63

ROUNDS FOR SEAMLESS TUBING

Inland Steel Co., Indiana Harbor, Ind.	$76
Republic Steel Corp., Cleveland, Canton, Massillon, O.; So. Chicago, Ill.	$76

SKELP

	Cents per lb.
Carnegie-Illinois Steel Corp., Munhall, Pa., Youngstown	3.25
Jones & Laughlin Steel Corp., Aliquippa, Pa.	3.25
Republic Steel Corp., Youngstown, Warren, O.	3.25

WIRE RODS

(5/32 to 3/4 inch)

American Steel & Wire Co., Donora, Pa.; Cleveland; Joliet, Ill.	3.40
American Steel & Wire Co., Worcester, Mass.	3.70
Bethlehem Pacific Coast Steel Corp., Los Angeles	4.10
Bethlehem Steel Co., Johnstown, Pa.	3.40
Columbia Steel Co., Pittsburg, Calif.	4.05
Keystone Steel & Wire Co., Chicago base	3.90
Pittsburgh Steel Co., Monessen, Pa.	4.15
Portsmouth Steel Corp., Portsmouth, O.	4.10
Republic Steel Corp., Alabama City, Ala.; So. Chicago, Ill.	3.40
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	3.40
Youngstown Sheet & Tube Co., Struthers, O.	3.65

WIRE RODS

(5/32 to 47/64 inch)

Bethlehem Steel Co., Sparrows Point, Md.	3.50

BARS, HOT-ROLLED CARBON STEEL

Armco Steel Corp., Ashland, Ky.	3.35
Atlantic Steel Co., Atlanta	4.10
Bethlehem Pacific Coast Steel Corp., So. San Francisco, Los Angeles, Seattle	4.10
Bethlehem Steel Co., Johnstown, Pa., Lackawanna, N. Y.	3.35
Carnegie-Illinois Steel Corp., So. Duquesne, Clairton, Pa.; Youngstown; So. Chicago, Ill.; Gary, Ind.	3.35
Columbia Steel Co., Pittsburg, Torrance, Calif.	4.05
Colorado Fuel & Iron Corp., Minnequa, Colo.	4.25
Great Lakes Steel Corp., Ecorse, Mich.	3.55
Inland Steel Co., Indiana Harbor, Ind.	3.35
Jones & Laughlin Steel Corp., Pittsburgh, Aliquippa, Pa.	3.55
Kaiser Co. Inc., Fontana, Calif.	5.30
Northwest Steel Rolling Mills Inc., Seattle	4.10
Oregon Steel Mills, Portland, Oreg.	4.10
Pacific States Steel Corp., Niles, Calif	4.10
Pittsburgh Steel Co., Monessen, Pa.	3.55
Republic Steel Corp., Alabama City, Ala.; Buffalo; Cleveland, Youngstown, Canton, O.; So. Chicago, Ill.	3.35
Sheffield Steel Corp., Kansas City, Mo.	4.20
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	3.35
Weirton Steel Co., Weirton, W. Va.	3.35
Wisconsin Steel Co., So. Chicago, Ill.	3.35
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Struthers, O.	3.35

BAR SIZE ANGLES & SMALL SHAPES

Atlantic Steel Co., Atlanta	4.25
Bethlehem Steel Co., Bethlehem, Pa.	3.55
Simmons Co., San Francisco	5.22½

RAIL STEEL BARS

	Merchant	Reinforcing
Jersey Shore Steel Co., Avis, Pa.	4.80	
Republic Steel Corp., Moline, Ill.	3.35	
Sweet's Steel Co., Williamsport, Pa.	*4.80	4.65
West Virginia Steel & Mfg. Co., Huntington, W. Va.		5.25

* Includes rail steel angles.

BARS, COLD-FINISHED CARBON STEEL

American Steel & Wire Co., Donora, Pa.; Cleveland; Waukegan, Ill.	4.00
Bliss & Laughlin Inc., Harvey, Ill.; Buffalo	4.00
Bliss & Laughlin Inc., Mansfield, Mass.	4.40
Columbia Steel & Shafting Co., Carnegie, Pa.	4.00
Compressed Steel Shafting Co., Readville, Mass.	4.40
Cumberland Steel Co., Cumberland, Md.	3.95
Cuyahoga Steel & Wire Co., Cleveland	4.00
Great Lakes Steel Corp., Ecorse, Mich.	4.30
Jones & Laughlin Steel Corp., Pittsburgh	3.95
Kidd Drawn Steel Co., Aliquippa, Pa.	4.00
La Salle Steel Co., Hammond, Ind.	4.00
Medart Co., St. Louis	4.35
Moltrup Steel Products Co., Beaver Falls, Pa.	4.00
Monarch Steel Co., Hammond, Ind.	4.00
Monarch Steel Co., Indianapolis	4.20
Nelsen Steel & Wire Co., Franklin Park, Ill.	4.00
Pilgrim Drawn Steel Corp., Plymouth, Mich.	4.36
Pittsburgh Crucible Steel Co., Midland, Pa.	4.00
Pittsburgh Steel Co., Monessen, Pa.	4.25
Precision Cold Drawn Steel Co., Camden, N. J.	4.45
Republic Steel Corp., Beaver Falls, Pa.; Gary, Ind.; Massillon, O.	4.00
Republic Steel Corp., Hartford, Conn.	4.40
Superior Drawn Steel Co., Monaca, Pa.	4.00
Union Drawn Steel (Republic), Los Angeles	5.30
Western Automatic Machine Screw Co., Elyria, O.	4.00
Wisconsin Steel Co., So. Chicago, Ill.	4.00
Wyckoff Steel Co., Ambridge, Pa., Chicago	4.00
Wyckoff Steel Co., Newark, N. J., Putnam, Conn.	4.40
Youngstown Sheet & Tube Co., Youngstown	4.00

BARS, HOT-ROLLED ALLOY

Bethlehem Pacific Coast Steel Corp., Los Angeles	4.80
Bethlehem Steel Co., Bethlehem, Johnstown, Pa., Lackawanna, N. Y.	3.75
Carnegie-Illinois Steel Corp., So. Duquesne, Clairton, Pa.; Youngstown; So. Chicago, Ill.; Gary, Ind.	3.75
Great Lakes Steel Corp., Ecorse, Mich.	4.05
Inland Steel Co., Indiana Harbor, Ind.	3.75
Kaiser Co. Inc., Fontana, Calif.	5.50
Pittsburgh Crucible Steel Co., Midland, Pa.	3.75
Republic Steel Corp., Buffalo; So. Chicago, Ill.; Canton, Massillon, O.	3.75
Timken Roller Bearing Co., Canton, O.	3.75
Wisconsin Steel Co., So. Chicago, Ill.	3.75
Youngstown Sheet & Tube Co., Struthers, O.	3.75

BAR SHAPES, HOT-ROLLED ALLOY

Carnegie-Illinois Steel Corp., Clairton, Pa.; Youngstown; Gary, Ind.	4.00

Company and mill points shown. All listed prices are in cents per pound unless otherwise noted.

BARS, COLD-FINISHED ALLOY

American Steel & Wire Co., Donora, Pa.; Cleveland; Waukegan, Ill.	4.65
American Steel & Wire Co., Worcester, Mass.	4.95
Bethlehem Steel Co., Bethlehem, Pa.; Lackawanna, N. Y.	4.65
Bliss & Laughlin Inc., Harvey, Ill.; Buffalo	4.65
Bliss & Laughlin Inc., Mansfield, Mass.	4.95
Columbia Steel & Shafting Co., Carnegie, Pa.	4.65
Cuyahoga Steel & Wire Co., Cleveland	4.65
Kidd Drawn Steel Co., Aliquippa, Pa.	4.65
La Salle Steel Co., Hammond, Ind.	4.65
Moltrup Steel Products Co., Beaver Falls, Pa.	4.65
Monarch Steel Co., Hammond, Ind.	4.65
Monarch Steel Co., Indianapolis	4.85
Pittsburgh Crucible Steel Co., Midland, Pa.	4.65
Pittsburgh Steel Co., Monessen, Pa.	4.75
Republic Steel Corp., Canton, Massillon, O.; Gary, Ind.; So. Chicago, Ill.	4.65
Republic Steel Corp., Hartford, Conn.	4.95
Superior Drawn Steel Co., Monaca, Pa.	4.65
Timken Roller Bearing Co., Canton, O.	4.65
Western Automatic Machine Screw Co., Elyria, O.	4.65
Wisconsin Steel Co., So. Chicago, Ill.	4.65
Wyckoff Steel Co., Chicago; Ambridge, Pa.	4.65
Youngstown Sheet & Tube Co., Youngstown	4.65

BARS, REINFORCING

(To Fabricators)

Atlantic Steel Co., Atlanta	4.10
Bethlehem Pacific Coast Steel Corp., Los Angeles, So. San Francisco, Calif.	4.10
Bethlehem Pacific Coast Steel Corp., Seattle, Wash.	4.10
Bethlehem Steel Co., Johnstown, Pa.; Lackawanna, N. Y.	3.35
Bethlehem Steel Co., Sparrows Point, Md.	3.35
Carnegie-Illinois Steel Corp., So. Duquesne, Pa., Youngstown, Gary, Ind.	3.35
Columbia Steel Co., Pittsburg, Torrance, Calif.	4.05
Colorado Fuel & Iron Corp., Minnequa, Colo.	4.25
Inland Steel Co., Indiana Harbor, Ind.	3.35
Jones & Laughlin Steel Corp., Pittsburgh	3.35
Pittsburgh Steel Co., Monessen, Pa.	3.55
Republic Steel Corp., Buffalo, N. Y.; Alabama City Ala.; So. Chicago, Ill.; Youngstown, Cleveland	3.35
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	3.35

BARS, REINFORCING

(Fabricated; to Consumers)

Bethlehem Pacific Coast Steel Corp., Seattle	5.00
Carnegie-Illinois Steel Corp., So. Duquesne, Pa.; Youngstown; Gary, Ind.	4.25
Jones & Laughlin Steel Corp., Pittsburgh	4.10
Northwest Steel Rolling Mills Inc., Seattle, Wash.	5.00

BARS, HOT-ROLLED INGOT IRON

Armco Steel Corp., Ashland, Ky.	3.60

BARS, WROUGHT IRON

	Single Refined	Double Refined	Staybolt
A. M. Byers Co., Economy, Pa.	9.50	11.00	11.30
Lockhart Iron & Steel Co., McKees Rocks, Pa.	*8.60	*11.25	*12.75

* Hand puddled.

BARS AND SMALL SHAPES, HOT-ROLLED, HIGH-STRENGTH LOW-ALLOY

Bethlehem Steel Co., Bethlehem, Pa.; Lackawanna, N. Y.; Johnstown, Pa.	5.10
Carnegie-Illinois Steel Corp., So. Duquesne, Clairton, Pa.; Youngstown; Gary, Ind.	5.10
Great Lakes Steel Corp., Ecorse, Mich.	5.40
Inland Steel Co., Indiana Harbor, Ind.	5.10
Jones & Laughlin Steel Corp., Pittsburgh, Aliquippa, Pa.	5.10
Republic Steel Corp., Cleveland	5.10
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	5.10
Youngstown Sheet & Tube Co., Struthers, O.	5.10

SHEETS, HOT-ROLLED STEEL

(18 Gage and Heavier)

Alan Wood Steel Co., Conshohocken, Pa.	5.00
Armco Steel Corp., Ashland, Ky.	3.25
Bethlehem Steel Co., Sparrows Point, Md.; Lackawanna, N. Y.	3.25
Carnegie-Illinois Steel Corp., Irvin, Munhall, Pa.; Youngstown; So. Chicago, Ill.	3.25
Columbia Steel Co., Pittsburg, Torrance, Calif.	3.95
Great Lakes Steel Corp., Ecorse, Mich.	3.45
Inland Steel Co., Indiana Harbor, Ind.	3.25
Jones & Laughlin Steel Corp., Pittsburgh, Cleveland	3.30
Kaiser Co., Inc., Fontana, Calif.	5.65
Republic Steel Corp., Alabama City, Ala.; Cleveland, Warren, O.	3.25
Sharon Steel Corp., Sharon, Pa.	3.25
Sheffield Steel Corp., Kansas City, Mo.	6.25
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	3.25
Weirton Steel Co., Weirton, W. Va.	3.25
Wheeling Steel Corp., Steubenville, O.	3.25
Wisconsin Steel Co., So. Chicago, Ill.	3.25
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Youngstown	3.25

SHEETS, HOT-ROLLED, CARBON STEEL

(19 Gage and lighter)

Carnegie-Illinois Steel Corp., Gary, Ind.	4.15
Columbia Steel Co., Torrance, Calif.	5.05
Continental Steel Corp., Kokomo, Ind.	5.05
Inland Steel Co., Indiana Harbor, Ind.	4.15
Niles Rolling Mill Co., Niles, O.	4.65
Republic Steel Corp., Alabama City, Ala.	4.40
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.15

SHEETS, COLD-ROLLED STEEL

(Commercial Quality)

Armco Steel Corp., Middletown, O.	4.00
Bethlehem Steel Co., Sparrows Point Md.; Lackawanna, N. Y.	4.00
Carnegie-Illinois Steel Corp., Irvin, Pa.	4.00
Columbia Steel Co., Pittsburg, Calif.	4.95
Follansbee Steel Corp., Follansbee, W. Va.	4.00
Granite City Steel Co., Granite City, Ill.	4.20
Great Lakes Steel Corp., Ecorse, Mich.	4.20
Inland Steel Co., Indiana Harbor, Ind.	4.00
Jones & Laughlin Steel Corp., Pittsburgh, Cleveland	4.00
Republic Steel Corp., Cleveland, Warren, O.	4.00
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.00
Wheeling Steel Corp., Steubenville, O.	4.00
Weirton Steel Co., Wierton, W. Va.	4.00
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Youngstown	4.00

SHEETS, GALVANIZED No. 10, STEEL

Armco Steel Corp., Middletown, O.	4.40
Bethlehem Steel Co., Sparrows Point, Md.	4.40
Carnegie-Illinois Steel Corp., Irvin, Pa.; Gary, Ind.	4.40
Columbia Steel Co., Pittsburg, Torrance, Calif.	5.15
Continental Steel Corp., Kokomo, Ind.	5.30
Inland Steel Co., Indiana Harbor, Ind.	4.40
Niles Rolling Mill Co., Niles, O.	5.00
Republic Steel Corp., Alabama City, Ala.; Canton, O.	4.40
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.40
Weirton Steel Co., Weirton, W. Va.	4.40
Wheeling Steel Corp., Martins Ferry, Steubenville, O.	4.40

SHEETS, GALVANNEALED, STEEL

Carnegie-Illinois Steel Corp., Irvin, Pa.	4.95
Continental Steel Corp., Kokomo, Ind.	5.70
Inland Steel Co., Indiana Harbor, Ind.	5.05
Niles Rolling Mill Co., Niles, O.	5.55
Republic Steel Corp., Canton, O.	4.95

SHEETS, HOT-ROLLED, HIGH-STRENGTH LOW-ALLOY

(14 Gage and heavier)

Alan Wood Steel Co., Conshohocken, Pa.	5.25
Armco Steel Corp., Middletown, O.	4.95
Bethlehem Steel Co., Sparrows Point, Md.; Lackawanna, N. Y.	4.95
Carnegie-Illinois Steel Corp., Irvin, Pa.; Youngstown; So. Chicago, Ill.; Gary, Ind.	4.95
Great Lakes Steel Corp., Ecorse, Mich.	5.25
Inland Steel Co., Indiana Harbor, Ind.	4.95
Jones & Laughlin Steel Corp., Pittsburgh; Cleveland	4.95
Republic Steel Corp., Cleveland, Warren, O.	4.95
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.95
Youngstown Sheet & Tube Co., Youngstown	4.95

SHEETS, COLD-ROLLED, HIGH-STRENGTH LOW-ALLOY

Bethlehem Steel Co., Sparrows Point, Md.; Lackawanna, N. Y.	6.05
Carnegie-Illinois Steel Corp., Irvin, Pa.; Gary, Ind	6.05
Great Lakes Steel Corp., Ecorse, Mich.	6.35
Inland Steel Co., Indiana Harbor, Ind.	6.05
Jones & Laughlin Steel Corp., Pittsburgh, Cleveland	6.05
Republic Steel Corp., Cleveland, Warren, O.	6.05
Youngstown Sheet & Tube Co., Youngstown	6.05

SHEETS, GALVANIZED No. 10, HIGH-STRENGTH LOW-ALLOY

Bethlehem Steel Co., Sparrows Point, Md.	6.75
Carnegie-Illinois Steel Corp., Irvin, Pa.	6.75

SHEETS, SILICON

(24 Gage Base)

	Field	Arm.	Elec.	Motor	Dynamo
Allegheny-Ludlum, Brackenridge, Pa.				6.70	7.50
Armco, Zanesville, O.; Butler, Pa.	5.15	5.45	5.95	6.70	7.50
Carnegie-Illinois, Vandergrift, Pa.		5.45	5.95	6.70	7.50
Continental Steel Corp.			6.05		
Follansbee Steel Corp., Follansbee, W. Va.; Toronto, O.				6.70	7.40
Granite City Steel Co., Granite City, Ill.			6.15	6.90	7.70
Inland Steel Co., Indiana Harbor, Ind.	5.15	5.45	5.95		
Niles Rolling Mill Co., Niles, O.		6.05	6.55		
Republic Steel Corp., Warren, O.		5.45	5.95	6.70	
Wheeling Steel Corp., Beech Bottom, W. Va.			5.95	6.70	7.50

COILS AND CUT LENGTHS, SILICON

Armco Steel Corp., Butler, Pa.			6.20	6.95	
Republic Steel Corp., Warren, O.	5.40	5.70	6.20	6.95	7.65
Carnegie-Illinois, Vandergrift, Pa.		5.70	6.20	6.95	7.65

SHEETS, SILICON TRANSFORMER GRADE

	72	65	58	52
Armco Steel Corp., Zanesville, O.	8.05	8.60	9.30	
Allegheny-Ludlum Steel Corp., Brackenridge, Pa.	8.05	8.60	9.30	
Carnegie-Illinois Steel Corp., Vandergrift, Pa.	8.05	8.60	9.30	10.10
Follansbee Steel Corp., Follansbee, W. Va.; Toronto, O.	7.90	8.60	9.30	10.10
Wheeling Steel Corp., Beech Bottom, W. Va.	8.05	8.60	9.30	10.10

COLD-REDUCED COILS AND CUT LENGTHS, SILICON

	72	T-100	T-90	T-80
Armco Steel Corp., Butler, Pa.		11.35	12.60	13.85
Carnegie-Illinois Steel Corp., Vandergrift, Pa.	8.30	11.35	12.60	13.85
Republic Steel Corp., Warren, O.	8.15			

SHEETS, CULVERT, No. 16 FLAT

	Copper Alloy	Cu-Fe
Bethlehem Steel Co., Sparrows Point, Md.	5.00	
Carnegie-Illinois Steel Corp., Irvin, Pa.; Gary, Ind.	5.00	5.35
Columbia Steel Co., Pittsburg, Torrance, Calif.	5.75	
Granite City Steel Co., Granite City, Ill.	5.40	5.75
Continental Steel Corp., Kokomo, Ind.	5.45	

SHEETS, ALUMINIZED

Armco Steel Corp., Butler, Pa.	7.75

SHEETS, LONG TERNE, STEEL, (No. 10; Commercial Quality)

Armco Steel Corp., Middletown, O.	4.80
Carnegie-Illinois Steel Corp., Gary, Ind.	4.80
Weirton Steel Co., Weirton, W. Va.	4.80
Wheeling Steel Corp., Beech Bottom, W. Va.	4.80

SHEETS, LONG TERNE, INGOT IRON

Armco Steel Corp., Middletown, O.	5.20

SHEETS, ENAMELING, IRON, No. 12

Armco Steel Corp., Middletown, O., Ashland, Ky.	4.40
Carnegie-Illinois Steel Corp., Irvin, Pa.; Gary, Ind.	4.40
Granite City Steel Co., Granite City, Ill.	4.60
Great Lakes Steel Corp., Ecorse, Mich.	4.70
Inland Steel Co., Indiana Harbor, Ind.	4.40
Niles Rolling Mill Co., Niles, O.	6.00
Republic Steel Corp., Cleveland, O.	4.40
Youngstown Sheet & Tube Co., Youngstown, O.	4.40

SHEETS, WELL CASING

Carnegie-Illinois Steel Corp., Youngstown, O.	3.75
Columbia Steel Co., Torrance, Calif.	4.75

SHEETS, OVEN LINING

Republic Steel Corp., Canton, O.	5.10

SHEETS, HOT-ROLLED INGOT IRON, (18 G. and Heavier)

Armco Steel Corp., Ashland, Ky.	3.50
Inland Steel Co., Indiana Harbor, Ind.	3.50
Republic Steel Corp., Cleveland, Warren, O.	3.50

7—Cost customers more money because of increased transportation charges.

8—Prevent establishment of consumer cost estimates prior to actual purchases.

9—Result in higher prices on finished products to the ultimate consumer.

10—Create confusion and uncertainties in the marketing of steel products with chaotic effects on the economy of the nation.

Only time will determine whether all of these fears will be confirmed. As a matter of fact, full economic import of the switch from basing point pricing to mill pricing in steel is impossible to assess at this time for several reasons.

For one thing, the situation in steel is tied in with that of other industries affected by the Supreme Court decisions. There are literally scores of them involved in one way or another, ranging from pins and cigarettes to massive machinery. Clearly, ultimate outcome of the steel situation will depend to considerable extent on the way the problem works out for industry in general.

Thorough Analysis Impossible — Secondly, thorough analysis of the implications of the steel pricing change for the national economy is complicated by the unusual marketing conditions and other factors attending the postwar boom. Impact of the change necessarily cannot be more than superficially gaged pending return of more normal competitive conditions in the sale of steel.

Effects of the change, however, already have been reflected to some degree in significant current market developments serving to confirm producers' and consumers' worst fears for the future.

Simple System — Actually the new steel pricing system is simplicity itself. Broadly, it is described as f.o.b. mill pricing. Most producers, however, simply post mill prices, possibly leaving the way clear for application of an extra to cover cost of moving shipments from mill floor to freight carrier in event such should later prove desirable.

Under the new system each producing mill serves as the price base for the product or products it produces. To these mill prices established applicable extras are added. Full freight charges (rail, truck, water) to point of consumption to make up the actual delivered prices to consumer are paid by the buyer. However, if delivered prices are requested by cus-

tomers, these, as quoted by the mills, consist of mill prices plus actual freight to destination.

That is about all there is to the new system. However, simple formula though it may be, it is a radical departure from previous practice, and the end result of its application is a diversity of delivered quotations at consuming plants which have buyers' heads swimming in a maze of arithmetical computations.

The method permits of practically no uniformity in delivered prices, these varying according to the source of shipment, the specific freight rate involved, and the mill price quoted by the vendor which may differ from those quoted by other sellers.

Base Pricing Uniform — This differs greatly from experience under the basing point system, operation of which made for uniform delivered prices in the various marketing areas.

Under Pittsburgh Plus, abandoned in 1924 following a cease and desist order against the United States Steel Corp. by the Federal Trade Commission, all steel, no matter where it was produced took the Pittsburgh base price plus the freight from Pittsburgh to consuming point. This made for price uniformity in the various consuming areas. However, it involved payment by consumers of "phantom" freight when they bought steel from mills at their back doors and had to pay non-incurred freight charges from Pittsburgh.

Pittsburgh Plus, however, despite its apparent inequities, encouraged steel production at many points throughout the country since under the price umbrella it afforded, new and financially weak steel producing firms were able to compete profitably for business with the larger and more firmly established interests located at the older steelmaking centers.

When Pittsburgh Plus went into the discard in 1924, so-called multiple basing point pricing was adopted. At first only a few points made up the

EDITOR'S NOTE

ALL of the accompanying listed steel product prices have been thoroughly checked by STEEL for accuracy, but because of the unsettled state of the market it is suggested that readers verify each separate quotation with each separate producer.

SHEETS, COLD-ROLLED INGOT IRON

Armco Steel Corp., Middletown, O.	4.50
Republic Steel Corp., Cleveland, Warren, O.	4.50

SHEETS, GALVANIZED INGOT IRON, (No. 10 Flat)

Armco Steel Corp., Middletown, O., Ashland, Ky.	4.65
Inland Steel Co., Indiana Harbor, Ind.	4.95
Republic Steel Corp., Canton, O.	4.65

STRIP, HOT-ROLLED CARBON STEEL

Acme Steel Co., Riverdale, Ill.	3.30
Allegheny-Ludlum Steel Corp., West Leechburg, Pa.	3.70
Armco Steel Corp., Ashland, Ky.	3.25
Atlantic Steel Co., Atlanta	3.45
Bethlehem Pacific Coast Steel Corp., Seattle; Los Angeles, So. San Francisco, Calif.	4.25
Bethlehem Steel Co., Sparrows Point, Md.; Lackawanna, N. Y.	3.25
Carnegie-Illinois Steel Corp., Youngstown; Gary, Ind.	3.25
Columbia Steel Co., Pittsburg, Torrance, Calif.	4.00
Colorado Fuel & Iron Corp., Minnequa, Colo.	4.30
Great Lakes Steel Corp., Ecorse, Mich.	3.45
Inland Steel Co., Indiana Harbor, Ind.	3.25
Jones & Laughlin Steel Corp., Cleveland, Pittsburgh	3.30
Kaiser Co. Inc., Fontana, Calif.	5.90
McLouth Steel Co., Detroit	3.60
Republic Steel Corp., Buffalo; Warren, O.; Alabama City, Ala.	3.25
Sharon Steel Corp., Sharon, Pa.	**3.35
Sheffield Steel Corp., Kansas City, Mo.	†4.20
Stanley Works, New Britain, Conn. Pittsburgh base	4.90
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	3.25
Weirton Steel Co., Weirton, W. Va.	3.25
Wisconsin Steel Co., So. Chicago, Ill.	3.25
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Youngstown	3.25

* 2" and over; under 2" 4.00c.
** 6 inch and narrower; 3.25, wider than 6 inches.
† 6 inch and narrower.

STRIP, HOT-ROLLED ALLOY STEEL

Carnegie-Illinois Steel Corp., Youngstown; Gary, Ind.	5.10
Sharon Steel Corp., Sharon, Pa.	5.10
Superior Steel Corp., Carnegie, Pa.	5.10

STRIP, COLD-ROLLED CARBON STEEL

Acme Steel Co., Riverdale, Ill.	4.25
Armco Steel Corp., Middletown, O.	4.00
Allegheny-Ludlum Steel Corp., W. Leechburg, Pa.	4.50
American Shim Co., New Kensington, Pa.	4.75
American Steel & Wire Co., Cleveland	4.00
American Steel & Wire Co., New Haven, Conn.	4.50
Bethlehem Steel Co., Sparrows Pt., Md.; Lackawanna, N. Y.	4.00
Blair Strip Steel Co., New Castle, Pa.	4.50
California Cold Rolled Steel Corp., Los Angeles	5.75
Cold Metal Products Co., Youngstown	4.80
Detroit Steel Corp., Detroit	4.50
Detroit Tube & Steel Co., Detroit	4.45
Elliott Bros. Steel Co., New Castle, Pa.	4.50
Follansbee Steel Corp., Follansbee, W. Va.	4.00
Great Lakes Steel Corp., Ecorse, Mich.	4.20
Greer Steel Co., Dover, O.	4.75
Inland Steel Co., Indiana Harbor, Ind.	4.00
Jones & Laughlin Steel Corp., Cleveland, Pittsburgh	4.00
Kaiser Co. Inc., Fontana, Calif.	7.10
McLouth Steel Co., Detroit	4.40
Newman-Crosby Steel Corp., Pawtucket, R. I. Cleveland or Pittsburgh base	4.55
Worcester, Mass., base	4.75
Republic Steel Corp., Warren, O.	4.00
Roebling's Sons Co. (John A.), Trenton, N. J.	*4.50
Sharon Steel Corp., Sharon, Pa.	4.00
Stanley Works, New Britain, Conn. Pittsburgh base	5.00
Thomas Steel Co., Warren, O.	4.25
Thompson Wire Co., Mattapan, Boston	4.50
Wallingford Steel Co., Wallingford, Conn.	**4.80
Weirton Steel Co., Weirton, W. Va.	4.00
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Youngstown	4.00

* For 3 in. and wider; over ½ in. to under 3 in. 5.00c.
** 0.08 to 0.25 carbon, lighter than 0.05 gage; 0.05 gage and heavier, 5.05.

STRIP, COLD-ROLLED ALLOY STEEL

American Steel & Wire Co., Cleveland	9.50
American Steel & Wire Co., Worcester, Mass.	9.80
Sharon Steel Corp., Sharon, Pa.	9.50
Superior Steel Corp., Carnegie, Pa.	9.50
Newman-Crosby Steel Corp., Pawtucket, R. I. Cleveland or Pittsburgh base	10.35
Worcester base	10.65

STRIP, COLD-FINISHED, SPRING STEEL

(Annealed)

	0.25-0.40	0.40-0.60	0.60-0.80	0.80-1.05	1.05-1.35
American Steel & Wire Co., Cleveland	4.00	5.50	6.10	8.05	10.35
American Steel & Wire Co., Worcester, Mass.	4.30	5.80	6.40	8.35	10.65
Blair Strip Steel Co., New Castle, Pa.	4.50	6.00	6.60		
Cold Metal Products Co., Youngstown	4.50	5.50	6.10	8.05	10.35
Greer Steel Co., Dover, O.	4.25	5.75	6.35	7.85	10.15
Newman-Crosby Steel Corp., Pawtucket, R. I.					
Cleveland or Pittsburgh base	4.55	5.50	6.10	8.05	10.35
Worcester base	4.75	5.80	6.40	8.35	10.65
Superior Steel Corp., Carnegie, Pa.		5.50	6.10		
Sharon Steel Corp., Sharon, Pa.	4.00	5.50	6.10	8.05	10.35
Thompson Wire Co., Mattapan, Boston	4.50	5.95			
Thompson Wire Co., Chicago	4.25	5.65	6.25	8.20	10.50
Roebling's Sons Co. (John A.), Trenton, N. J.		5.80	6.40	8.35	10.65
Wallace Barnes Co., Bristol, Conn.			6.40	8.35	
Wallingford Steel Co., Wallingford, Conn.	4.75	5.80	6.40	8.05	10.30

STRIP, HOT-ROLLED, HIGH-STRENGTH LOW-ALLOY

Bethlehem Steel Co., Sparrows Point, Md.; Lackawanna, N. Y.	4.95
Carnegie-Illinois Steel Corp., Youngstown; Gary, Ind.	4.95
Great Lakes Steel Corp., Ecorse, Mich.	5.25
Inland Steel Co., Indiana Harbor, Ind.	4.95
Jones & Laughlin Steel Corp., Cleveland, Pittsburgh	4.95
Republic Steel Corp., Warren, O.	4.95
Sharon Steel Corp., Sharon, Pa.	4.95
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	4.95
Youngstown Sheet & Tube Co., Struthers, O.	4.95

STRIP, COLD-ROLLED, HIGH-STRENGTH LOW-ALLOY

American Steel & Wire Co., Cleveland	6.05
Bethlehem Steel Co., Sparrows Pt., Md.; Lackawanna, N. Y.	6.05
Great Lakes Steel Corp., Ecorse, Mich.	6.35
Jones & Laughlin Steel Corp., Cleveland, Pittsburgh	6.05
Republic Steel Corp., Warren, O.	6.05
Sharon Steel Corp., Sharon, Pa.	6.05
Youngstown Sheet & Tube Co., Struthers, O.	6.05

STRIP, HOT-ROLLED INGOT IRON

Armco Steel Corp., Ashland, Ky.	3.50
Republic Steel Corp., Warren, O.	3.50

STRIP, COLD-ROLLED INGOT IRON

Republic Steel Corp., Warren, O.	5.00

TIGHT COOPERAGE HOOP

Carnegie-Illinois Steel Corp., Youngstown	3.60
Sharon Steel Corp., Sharon, Pa.	3.60

STRUCTURALS, CARBON STEEL

	Std. Shapes	CB Sec.	Bearing Piles (CBP Sec.)
Bethlehem Steel Co., Bethlehem, Johnstown, Pa.; Lackawanna, N. Y.	3.30		
Bethlehem Pacific Coast Steel Corp., Seattle; Los Angeles, So. San Francisco, Calif.	4.30		
Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.	3.25*	3.20	3.20
Colorado Fuel & Iron Corp., Minnequa, Colo.	4.15		
Columbia Steel Co., Torrance, Calif.	3.85		
Columbia Steel Co., Geneva, Utah	3.25		
Geneva Steel Co., Geneva, Utah	3.25		
Inland Steel Co., Indiana Harbor, Ind.	3.25		
Jones & Laughlin Steel Corp., Aliquippa, Pa.	3.30		
Kaiser Co. Inc., Fontana, Calif.	5.75		
Republic Steel Corp., Alabama City, Ala.	3.25		
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	3.25		
Weirton Steel Co., Weirton, W. Va.	3.25		
Wisconsin Steel Co., So. Chicago, Ill.	3.25		

* Based also at Clairton, Pa., Gary, Ind.

STRUCTURALS, WIDE FLANGE (BJ, BL, BS Sections)

Bethlehem Steel Co., Bethlehem, Pa.	3.30
Jones & Laughlin Steel Corp., Aliquippa, Pa.	3.30

SHEET STEEL PILING

Bethlehem Steel Co., Lackawanna, N. Y.	4.05
Carnegie-Illinois Steel Corp., Munhall, Pa.; Chicago	4.05
Inland Steel Co., Indiana Harbor, Ind.	4.05

list of price bases, but the list was gradually enlarged so that at the time of the latest change in pricing method there were some 80 odd basing points The majority of these were actual production centers, exceptions being a few points arbitrarily set up to care for special marketing conditions, such as around the Detroit automotive market, Gulf and Pacific Coast ports.

Freight Absorption — Multiple basing point pricing, to considerable extent but not entirely, eliminated the objectionable "phantom" freight which was peculiar to the Pittsburgh Plus method of quoting. However, multiple basing points gave rise to freight absorption by the mills on a much larger scale than had been possible previously, and, of course, resulted in uniform delivered prices in the various consuming areas

Under multiple basing point pricing the steel consumer paid the base price quoted by the mill nearest him on any steel he purchased regardless of its source of production. For example, a consumer in the Chicago district buying steel produced at Pittsburgh paid the Chicago base price. This meant that the Pittsburgh producer absorbed freight from Pittsburgh to the Chicago area to become competitive pricewise with Chicago district steel producers. Thus, through freight absorption the Chicago consumer had access to supply from all producing points throughout the country, not just Chicago, and at no additional cost.

Without freight absorption, it is insisted, local monopolies in the sale of steel are encouraged, it being impossible for producers to compete for business outside their home areas except at great sacrifice.

Fosters Local Trading — The effect of this ruling is to foster local business in the steel markets at the expense of national trading. Steelmakers could not possibly name a single mill price which would enable them to compete profitably in all consuming districts in normal times.

Reflecting this tendency toward localization of the steel business, steelmakers increasingly have been withdrawing from markets distant from their plants, giving rise to extreme supply hardships, forcing many abandoned consumers, unable to make new supply connections, to turn to the high-priced "gray" market for their steel supplies.

How much freight absorption amounted to under the basing point system is problematical. It differed among various producing companies, among the various products, and on almost every shipment. However, in

the case of the United States Steel Corp. it recently was estimated freight absorption averaged less than $1 per ton on all steel sold, though the absorption factor was larger or smaller depending upon the product involved in shipment.

Bone of Contention — This freight absorption was the bone of contention in the legal attack of the Federal Trade Commission against use of basing point pricing. It was held to be discriminatory and in violation of the antitrust laws

Probably the most immediate market disturbing element of the change to mill pricing in steel has been the confusion in prices accompanying the switch. Study of listings by the various producing companies show varying mill prices on many products, though the variations are not as numerous or as extreme as had been expected (see accompanying price tables). In the main, the larger interests' mill prices are fairly uniform, the departure from uniformity being chiefly by the smaller producers.

Delivered prices, of course, are all over the map because of the different freight rates which apply on almost every separate shipment.

Reflects Supply-Demand—To what extent diversity in mill prices is attributable to the change in pricing method is difficult to determine under present market conditions. There is little question some of the variations reflect the unbalanced supply-demand situation in steel. Price, today, is of secondary consideration to supply.

That the general tendency of producers is to maintain their competitive position under the new pricing policy so far as possible is evidenced by the fact that a number of them have readjusted their mill quotations, upward or downward as the case may be, when they found their listings out of line with those posted by other steelmakers.

Contributing to the confusion in the steel markets accompanying the changeover to mill pricing, is the fact that just about the time the switch was made a mill price increase was effected averaging out around 10 per cent, but varying, up or down, depending on product. At the same time freight rates have been hiked substantially over recent months thus adding importantly to the steel cost burden of buyers.

The net effect of these developments has been to boost steel costs of many consumers to a degree not experienced at any time in the past.

Freight Factor — Excluding normal increases in prices and freight rates, steel costs in the case of most consumers have been raised signifi-

STRUCTURALS, HIGH-STRENGTH LOW-ALLOY

	Std. Shapes
Bethlehem Steel Co., Bethlehem, Pa.	5.05
Bethlehem Steel Co., Johnstown, Pa.; Lackawanna, N. Y.	
Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.	4.95*
Inland Steel Co., Indiana Harbor, Ind.	4.95
Jones & Laughlin Steel Corp., Aliquippa, Pa.	4.95
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	4.95
Youngstown Sheet & Tube Co., Struthers, O.	4.95†

* Based also at Clairton, Pa., and Gary, Ind.; † 3-in. and larger angles.

STRUCTURALS, ALLOY STEEL

Carnegie-Illinois Steel Corp., Clairton, Munhall, Pa.; So. Chi
Gary, Ind.

PLATES, CARBON STEEL

Alan Wood Steel Co., Conshohocken, Pa.
Armco Steel Corp., Ashland, Ky.
Bethlehem Pacific Coast Steel Corp., Seattle
Bethlehem Steel Co., Sparrows Point, Md.
Carnegie-Illinois Steel Corp., Clairton, Irvin, Munhall, Pa.; You
So. Chicago, Ill.; Gary, Ind.
Central Iron & Steel Co., Harrisburg, Pa.
Colorado Fuel & Iron Corp., Minnequa, Colo.
Geneva Steel Co., Geneva, Utah
Great Lakes Steel Corp., Ecorse, Mich.
Inland Steel Co., Indiana Harbor, Ind.
Jones & Laughlin Steel Corp., Pittsburgh; Cleveland
Kaiser Co. Inc., Fontana, Calif.
Lukens Steel Co., Coatesville, Pa.
Republic Steel Corp., Alabama City, Ala.; Cleveland, Youngsto
ren, O.
Sharon Steel Corp., Sharon, Pa.
Sheffield Steel Corp., Kansas City, Mo.
Sheffield Steel of Texas, Houston, Tex.
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.
Weirton Steel Co., Weirton, W. Va.
Wisconsin Steel Co., So. Chicago, Ill.
Worth Steel Co., Claymont, Del.
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Youngst

PLATES, OPEN-HEARTH ALLOY STEEL

Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.;
Lukens Steel Co., Coatesville, Pa.

FLOOR PLATES

Alan Wood Steel Co., Conshohocken, Pa.
Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.
Inland Steel Co., Indiana Harbor, Ind.
Jones & Laughlin Steel Corp., Cleveland
Worth Steel Co., Claymont, Del.

PLATES, WROUGHT IRON

A. M. Byers Co., Economy, Pa.

PLATES, HIGH-STRENGTH LOW-ALLOY

Alan Wood Steel Co., Conshohocken, Pa.
Bethlehem Steel Co., Sparrows Point, Md.; Johnstown, Pa.
Carnegie-Illinois Steel Corp., Munhall, Clairton, Pa.; So. Chi
Gary, Ind.
Columbia Steel Co., Geneva, Utah
Geneva Steel Co., Geneva, Utah
Great Lakes Steel Corp., Ecorse, Mich.
Inland Steel Co., Indiana Harbor, Ind.
Jones & Laughlin Steel Corp., Pittsburgh, Aliquippa, Pa.; Clev
Lukens Steel Co., Coatesville, Pa.
Republic Steel Corp., Cleveland, Warren, O.
Sharon Steel Corp., Sharon, Pa.
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.
Youngstown Sheet & Tube Co., Youngstown

PLATES, INGOT IRON

Armco Steel Corp., Ashland, Ky. (carlots)
Armco Steel Corp., Ashland, Ky. (less carlots)
Republic Steel Corp., Cleveland, Warren, O. (carlots)

STRIP, COLD-FINISHED, SPRING STEEL

(Annealed)

	0.25-0.40	0.40-0.60	0.60-0.80	0.80-1.05	1.05-1.35
American Steel & Wire Co., Cleveland	4.00	5.50	6.10	8.05	10.35
American Steel & Wire Co., Worcester, Mass.	4.30	5.80	6.40	8.35	10.65
Blair Strip Steel Co., New Castle, Pa.	4.50	6.00	6.60		
Cold Metal Products Co., Youngstown	4.50	5.50	6.10	8.05	10.35
Greer Steel Co., Dover, O.	4.25	5.75	6.35	7.85	10.15
Newman-Crosby Steel Corp., Pawtucket, R. I.					
Cleveland or Pittsburgh base	4.55	5.50	6.10	8.05	10.35
Worcester base	4.75	5.80	6.40	8.35	10.65
Superior Steel Corp., Carnegie, Pa.		5.50	6.10		
Sharon Steel Corp., Sharon, Pa.	4.00	5.50	6.10	8.05	10.35
Thompson Wire Co., Mattapan, Boston	4.50	5.95			
Thompson Wire Co., Chicago	4.25	5.65	6.25	8.20	10.50
Roebling's Sons Co. (John A.), Trenton, N. J.		5.80	6.40	8.35	10.65
Wallace Barnes Co., Bristol, Conn.			6.40	8.35	
Wallingford Steel Co., Wallingford, Conn.	4.75	5.80	6.40	8.05	10.30

STRIP, HOT-ROLLED, HIGH-STRENGTH LOW-ALLOY

Bethlehem Steel Co., Sparrows Point, Md.; Lackawanna, N. Y.	4.95
Carnegie-Illinois Steel Corp., Youngstown; Gary, Ind.	4.95
Great Lakes Steel Corp., Ecorse, Mich.	5.25
Inland Steel Co., Indiana Harbor, Ind.	4.95
Jones & Laughlin Steel Corp., Cleveland, Pittsburgh	4.95
Republic Steel Corp., Warren, O.	4.95
Sharon Steel Corp., Sharon, Pa.	4.95
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	4.95
Youngstown Sheet & Tube Co., Struthers, O.	4.95

STRIP, COLD-ROLLED, HIGH-STRENGTH LOW-ALLOY

American Steel & Wire Co., Cleveland	6.05
Bethlehem Steel Co., Sparrows Pt., Md.; Lackawanna, N. Y.	6.05
Great Lakes Steel Corp., Ecorse, Mich.	6.35
Jones & Laughlin Steel Corp., Cleveland, Pittsburgh	6.05
Republic Steel Corp., Warren, O.	6.05
Sharon Steel Corp., Sharon, Pa.	6.05
Youngstown Sheet & Tube Co., Struthers, O.	6.05

STRIP, HOT-ROLLED INGOT IRON

Armco Steel Corp., Ashland, Ky.	3.50
Republic Steel Corp., Warren, O.	3.50

STRIP, COLD-ROLLED INGOT IRON

Republic Steel Corp., Warren, O.	5.00

TIGHT COOPERAGE HOOP

Carnegie-Illinois Steel Corp., Youngstown	3.60
Sharon Steel Corp., Sharon, Pa.	3.60

STRUCTURALS, CARBON STEEL

	Std. Shapes	CB Sec.	Bearing Piles (CBP Sec.)
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Colorado Fuel & Iron Corp., Minnequa, Colo.	4.15		
Columbia Steel Co., Torrance, Calif.	3.85		
Columbia Steel Co., Geneva, Utah	3.25		
Geneva Steel Co., Geneva, Utah	3.25		
Inland Steel Co., Indiana Harbor, Ind.	3.25		
Jones & Laughlin Steel Corp., Aliquippa, Pa.	3.30		
Kaiser Co. Inc., Fontana, Calif.	5.75		
Republic Steel Corp., Alabama City, Ala.	3.25		
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	3.25		
Weirton Steel Co., Weirton, W. Va.	3.25		
Wisconsin Steel Co., So. Chicago, Ill.	3.25		

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SHEET STEEL PILING

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Contributing to the confusion in the steel markets accompanying the changeover to mill pricing, is the fact that just about the time the switch was made a mill price increase was effected averaging out around 10 per cent, but varying, up or down, depending on product. At the same time freight rates have been hiked substantially over recent months thus adding importantly to the steel cost burden of buyers.

The net effect of these developments has been to boost steel costs of many consumers to a degree not experienced at any time in the past.

Freight Factor — Excluding normal increases in prices and freight rates, steel costs in the case of most consumers have been raised signifi-

STRUCTURALS, HIGH-STRENGTH LOW-ALLOY

	Std. Shapes	CB Sec	Wide Flange
Bethlehem Steel Co., Bethlehem, Pa.	5.05		5.05
Bethlehem Steel Co., Johnstown, Pa.; Lackawanna, N. Y.		5.05	
Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.	4.95*	4.95	4.95
Inland Steel Co., Indiana Harbor, Ind.	4.95		
Jones & Laughlin Steel Corp., Aliquippa, Pa.	4.95		
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	4.95		
Youngstown Sheet & Tube Co., Struthers, O.	4.95†		

* Based also at Clairton, Pa., and Gary, Ind.; † 3-in. and larger angles.

STRUCTURALS, ALLOY STEEL

	Std. Shapes
Carnegie-Illinois Steel Corp., Clairton, Munhall, Pa.; So. Chicago, Ill.; Gary, Ind.	4.05

PLATES, CARBON STEEL

Alan Wood Steel Co., Conshohocken, Pa.	3.95
Armco Steel Corp., Ashland, Ky.	3.40
Bethlehem Pacific Coast Steel Corp., Seattle	4.30
Bethlehem Steel Co., Sparrows Point, Md.	3.45
Carnegie-Illinois Steel Corp., Clairton, Irvin, Munhall, Pa.; Youngstown; So. Chicago, Ill.; Gary, Ind.	3.40
Central Iron & Steel Co., Harrisburg, Pa.	5.85
Colorado Fuel & Iron Corp., Minnequa, Colo.	4.30
Geneva Steel Co., Geneva, Utah	3.40
Great Lakes Steel Corp., Ecorse, Mich.	3.65
Inland Steel Co., Indiana Harbor, Ind.	3.40
Jones & Laughlin Steel Corp., Pittsburgh; Cleveland	3.60
Kaiser Co. Inc., Fontana, Calif.	5.80
Lukens Steel Co., Coatesville, Pa.	3.75
Republic Steel Corp., Alabama City, Ala.; Cleveland, Youngstown, Warren, O.	3.40
Sharon Steel Corp., Sharon, Pa.	3.40
Sheffield Steel Corp., Kansas City, Mo.	6.25
Sheffield Steel of Texas, Houston, Tex.	4.56
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	3.40
Weirton Steel Co., Weirton, W. Va.	3.40
Wisconsin Steel Co., So. Chicago, Ill.	3.40
Worth Steel Co., Claymont, Del.	3.95
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Youngstown	3.40

PLATES, OPEN-HEARTH ALLOY STEEL

Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.; Gary, Ind.	4.40
Lukens Steel Co., Coatesville, Pa.	5.10

FLOOR PLATES

Alan Wood Steel Co., Conshohocken, Pa.	4.55
Carnegie-Illinois Steel Corp., Munhall, Pa.; So. Chicago, Ill.	4.55
Inland Steel Co., Indiana Harbor, Ind.	4.55
Jones & Laughlin Steel Corp., Cleveland	4.55
Worth Steel Co., Claymont, Del.	4.55

PLATES, WROUGHT IRON

A. M. Byers Co., Economy, Pa.	7.85

PLATES, HIGH-STRENGTH LOW-ALLOY

Alan Wood Steel Co., Conshohocken, Pa.	5.30
Bethlehem Steel Co., Sparrows Point, Md.; Johnstown, Pa.	5.30
Carnegie-Illinois Steel Corp., Munhall, Clairton, Pa.; So. Chicago, Ill.; Gary, Ind.	5.20
Columbia Steel Co., Geneva, Utah	5.20
Geneva Steel Co., Geneva, Utah	5.20
Great Lakes Steel Corp., Ecorse, Mich.	5.65
Inland Steel Co., Indiana Harbor, Ind.	5.20
Jones & Laughlin Steel Corp., Pittsburgh, Aliquippa, Pa.; Cleveland	5.20
Lukens Steel Co., Coatesville, Pa.	5.10
Republic Steel Corp., Cleveland, Warren, O.	5.20
Sharon Steel Corp., Sharon, Pa.	5.65
Tennessee Coal, Iron & Railroad Co., Bessemer, Fairfield, Ala.	5.20
Youngstown Sheet & Tube Co., Youngstown	5.20

PLATES, INGOT IRON

Armco Steel Corp., Ashland, Ky. (carlots)	3.65
Armco Steel Corp., Ashland, Ky. (less carlots)	4.15
Republic Steel Corp., Cleveland, Warren, O. (carlots)	3.65

cantly under the mill pricing system through payment of full freight costs by the buyers, at least a part of which had been previously absorbed by the steel producers under the basing point system.

It should be noted, however, that all buyers have not been equally affected. In some instances, buyers actually have benefitted by the change, their geographical position to the supplying mills calling for lower transportation charges than heretofore assessed.

It is in the case of the purchaser that must bring in steel from distant production points that the freight rate shoe pinches. Heretofore, under the basing point system the distant producer absorbed all or at least part of the freight in competing pricewise with the producer close by the consumer. Under mill pricing such freight absorption is out, the purchaser pays the full freight, and to that extent his steel costs are summarily increased.

Impact of Change — Impact of the change in pricing method plus the increase in mill prices since the shift was effected are shown in the following table giving comparative delivered prices at Detroit on cold-rolled sheets from several important steel producing centers:

UNDER THE MULTIPLE BASING POINT SYSTEM
(per net ton)

From	Local or base price	Freight*	Arbitrary Delivered price At Detroit
Detroit	$75.60	$0.00	$75.60
Pittsburgh	70.00	9.48	75.60
Cleveland	70.50	7.04	75.60
Chicago	70.00	9.06	75.60

UNDER THE NEW MILL PRICE METHOD
(per net ton)

From	Mill price	Freight*	Price Delivered Detroit
Detroit	$84.00	$0.00	$84.00
Pittsburgh	80.00	9.48	89.48
Cleveland	80.00	7.04	87.04
Chicago	80.00	9.06	89.06

* Exclusive of switching charge.

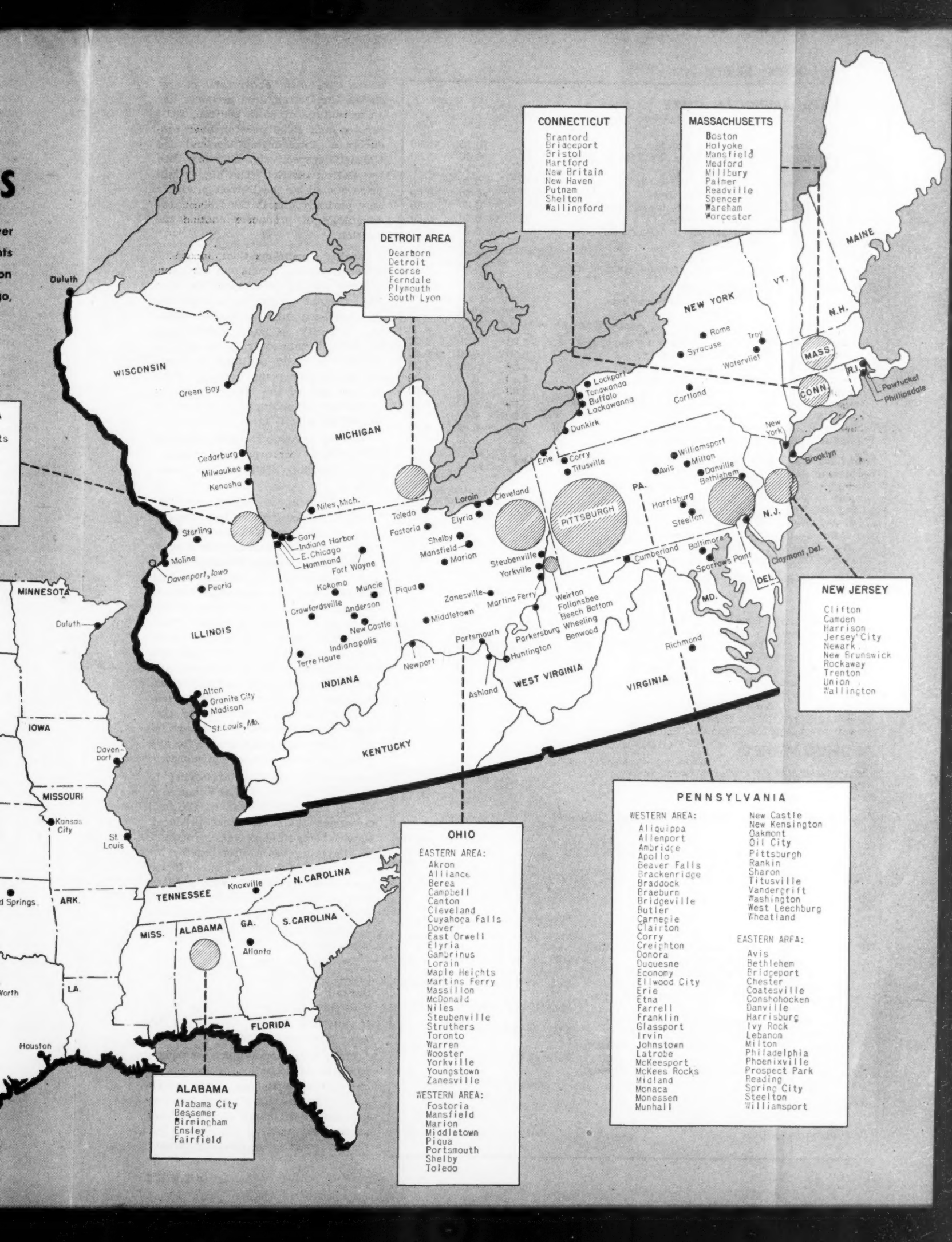
Under the basing point system the delivered prices of the various producers were uniform in that they all adopted the arbitrary price established for the Detroit area. The Detroit district producer, of course, had a mill net price advantage over producers shipping into the district from outside since these latter had to absorb freight in order to be competitive. Under the new system such freight absorption is out and the result is a diversity of delivered prices.

It should be noted that the mill price quoted by the Detroit area producers is somewhat above the mill prices quoted at other producing points.

To some extent this reflects the unusual state of the market attributable to unbalance in supply and de-

STEEL MILL LOCATIONS

Steel industry's products are now priced at mills, located at over 200 production points, compared with some 80 odd basing points under the former multiple basing point system. General location of mills concentrated in areas surrounding Pittsburgh, Chicago, Detroit, etc. are indicated by shaded areas.


CONNECTICUT
Branford
Bridgeport
Bristol
Hartford
New Britain
New Haven
Putnam
Shelton
Wallingford
MASSACHUSETTS
Boston
Holyoke
Mansfield
Medford
Millbury
Palmer
Readville
Spencer
Wareham
Worcester
DETROIT AREA
Dearborn
Detroit
Ecorse
Ferndale
Plymouth
South Lyon
NEW JERSEY
Clifton
Camden
Harrison
Jersey City
Newark
New Brunswick
Rockaway
Trenton
Union
Wallington
PENNSYLVANIA
WESTERN AREA:
Aliquippa
Allenport
Ambridge
Apollo
Beaver Falls
Brackenridge
Braddock
Braeburn
Bridgeville
Butler
Carnegie
Clairton
Corry
Creighton
Donora
Duquesne
Economy
Ellwood City
Erie
Etna
Farrell
Franklin
Glassport
Irvin
Johnstown
Latrobe
McKeesport
McKees Rocks
Midland
Monaca
Monessen
Munhall
New Castle
New Kensington
Oakmont
Oil City
Pittsburgh
Rankin
Sharon
Titusville
Vandergrift
Washington
West Leechburg
Wheatland
EASTERN AREA:
Avis
Bethlehem
Bridgeport
Chester
Coatesville
Conshohocken
Danville
Harrisburg
Ivy Rock
Lebanon
Milton
Philadelphia
Phoenixville
Prospect Park
Reading
Spring City
Steelton
Williamsport
OHIO
EASTERN AREA:
Akron
Alliance
Berea
Campbell
Canton
Cleveland
Cuyahoga Falls
Dover
East Orwell
Elyria
Gambrinus
Lorain
Maple Heights
Martins Ferry
Massillon
McDonald
Niles
Steubenville
Struthers
Toronto
Warren
Wooster
Yorkville
Youngstown
Zanesville
WESTERN AREA:
Fostoria
Mansfield
Marion
Middletown
Piqua
Portsmouth
Shelby
Toledo
ALABAMA
Alabama City
Bessemer
Birmingham
Ensley
Fairfield
Duluth
Green Bay
Cedarburg
Milwaukee
Kenosha
Sterling
Moline
Davenport, Iowa
Peoria
Alton
Granite City
Madison
St. Louis, Mo.
Niles, Mich.
Gary
Indiana Harbor
E. Chicago
Hammond
Fort Wayne
Kokomo
Muncie
Crawfordsville
Anderson
New Castle
Indianapolis
Terre Haute
Toledo
Fostoria
Shelby
Mansfield
Marion
Piqua
Middletown
Lorain
Cleveland
Elyria
Steubenville
Yorkville
Zanesville
Martins Ferry
Weirton
Follansbee
Beech Bottom
Wheeling
Benwood
Parkersburg
Portsmouth
Huntington
Newport
Ashland
Lockport
Tonawanda
Buffalo
Lackawanna
Dunkirk
Erie
Corry
Titusville
Cortland
Rome
Syracuse
Troy
Watervliet
Williamsport
Milton
Avis
Danville
Bethlehem
Harrisburg
Steelton
Brooklyn
New York
Pawtucket
Phillipsdale
Cumberland
Baltimore
Sparrows Point
Claymont, Del.
Richmond
PITTSBURGH
NEW YORK
MAINE
VT.
N.H.
MASS.
R.I.
CONN.
PA.
N.J.
DEL.
MD.
WEST VIRGINIA
VIRGINIA
KENTUCKY
INDIANA
ILLINOIS
WISCONSIN
MICHIGAN
MINNESOTA
IOWA
MISSOURI
ARK.
LA.
TENNESSEE
MISS.
ALABAMA
GA.
FLORIDA
S.CAROLINA
N.CAROLINA
Duluth
Davenport
Kansas City
St. Louis
Knoxville
Atlanta
Houston

AMERICAN COKE

(Per Base Box)

	1.25 lb	1.50 lb
el Co., Sparrows Pt., Md.	$6.70	$6.90
is Steel Corp., Irvin, Pa.; Gary, Ind.	6.60	6.80
l Co., Pittsburg, Calif.	7.35	7.55
teel Co., Granite City, Ill.	6.80	7.00
o., Indiana Harbor, Ind.	6.60	6.80
lin Steel Corp., Aliquippa, Pa.	6.60	6.80
Corp., Niles, Warren, O.	6.60	6.80
l, Iron & Railroad Co., Fairfield, Ala.	6.70	6.90
Co., Weirton, W. Va.	6.60	6.80
l Corp., Yorkville, O.	6.60	6.80
heet & Tube Co., Indiana Harbor, Ind.	6.60	6.80

ELECTROLYTIC

(Per Base Box)

	0.25 lb	0.50 lb	0.75 lb
el Co., Sparrows Pt., Md.	5.90	6.10	6.30
is Steel Corp., Irvin, Pa.; Gary, Ind.	5.80	6.00	6.20
teel Co., Granite City, Ill.	6.00	6.20	6.40
o., Indiana Harbor, Ind.	5.80	6.00	6.20
lin Steel Corp., Aliquippa, Pa.	5.80	6.00	6.20
Corp., Niles, Warren, O.	5.80	6.00	6.20
l, Iron & Railroad Co., Fairfield, Ala.	5.90	6.10	6.30
Co., Weirton, W. Va.	5.80	6.00	6.20
l Corp., Yorkville, O.	5.80	6.00	6.20
heet & Tube Co., Youngstown	5.80	6.00	6.20

E ENAMELING BLACK PLATE, 29 Gage

el Co., Sparrows Pt., Md.	4.85
is Steel Corp., Irvin, Pa.; Gary, Ind.	4.75
teel Co., Granite City, Ill.	4.95
o., Indiana Harbor, Ind.	4.75
lin Steel Corp., Aliquippa, Pa.	4.75
Corp., Niles, Warren, O.	4.75
Co., Weirton, W. Va.	4.75
l Corp., Yorkville, O.	4.75

BLACK PLATE

(Per Base Box)

	55-70 lb	75-95 lb	100-128 lb
ific Coast Steel Corp., Pittsburg, Calif.	$5.95	$5.85	$5.95
el Co., Bethlehem, Pa.	5.30	5.20	5.30
is Steel Corp., Irvin, Pa.; Gary, Ind.	5.20	5.10	5.20
Co., Pittsburg, Calif.	5.75	5.65	5.75
o., Indiana Harbor, Ind.	5.20	5.10	5.20
lin Steel Corp., Aliquippa, Pa.	5.20	5.10	5.20
Corp., Warren, O.	5.20	5.10	5.20
l, Iron & Railroad Co., Fairfield, Ala.	5.30	5.20	5.30
Corp., Yorkville, O.	5.20	5.10	5.20
heet & Tube Co., Indiana Harbor, Ind.	5.20	5.10	5.20

RNES

(Per Package; 8 lb coated)

is Steel Corp., Gary, Ind.	$15.50
Co., Weirton, W. Va.	15.50
Corp., Yorkville, O.	15.50

RING TERNES (Special Coated)

(Per Base Box)

s Steel Corp., Irvin, Pa.; Gary, Ind.	$5.90
, Iron & Railroad Co., Fairfield, Ala.	6.00
Co., Weirton, W. Va.	5.90
Corp., Yorkville, O.	5.90

	Standard Over 60 lb			Tee Rails 60 lb &	Tee Rails 40 lb &
	No. 1	No. 2	All No. 2	Under	Under
el Co., Sparrows Point, Md.; a.; Lackawanna, N. Y.	3.20	3.10			
el Co., Lackawanna, N. Y.				3.55	
el Co., Johnstown, Pa.					3.55
s Steel Corp., Braddock, Pa.;	3.20	3.10	3.15	3.55	
& Iron Corp., Minnequa, Colo.				4.25	
o., Indiana Harbor, Ind.	3.20	3.10	3.15		
l, Iron & Railroad Co., Ensley,	3.20	3.10	3.15		
l, Iron & Railroad Co., Ensley, Ala.				3.55	

	No. 1 Girder	No. 2 Girder
el Co.	3.70	3.00

mand, but, as the above table clearly shows, the Detroit area producer has an advantage of $5.48 per ton, $3.04 per ton and $5.06 per ton over producers at Pittsburgh, Cleveland and Chicago, respectively, shipping into the Detroit district. The higher mill price quoted by the Detroit producer only partially offsets the freight disadvantage of producers outside the district.

Market Conditions Complicated — Present market conditions are complicated by the fact transition from basing point pricing to mill pricing has not been fully completed. While the majority of steelmakers have made the changeover, a number of smaller interests continue to quote on the basing point system. Even in the case of the larger producers a number of products remain to be placed on a mill price basis.

Several producers are meeting competition wherever it is encountered, absorbing freight when necessary.

Chief alarm of buyers over the change in pricing arises from the import of the move for the future of their marketing position when more normal times return. Whether wholesale migration of manufacturing plants to sites more favorably located in relation to steel supply is in the cards is still anyone's guess. Much thought is being given greater diversion of steel shipments to truck and water transport as a means of easing the impact of added freight costs. However, while this holds some promise for the future, it is clear that today truck and water transport facilities are inadequate to care for any great increase in steel movement.

It is apparent from experience to date that the impact of the change in pricing has more severely hit the steel consumer than the steel producer. However, for the long term, prospects are anything but comforting for the latter, especially those located in excess-producing districts, such as Pittsburgh. That enlargement of steelmaking facilities at such points will be discouraged under the new setup is obvious.

Further, as time passes and customer relationships change between the mills, the tendency will be to install new facilities at points nearer consumption at the expense of the older producing districts.

Plant Migration — Such transfer of steelmaking activities, of course, will be years in the making. In the meantime, possible migration of fabricating plants to points closer to steel supply as a means of eliminating high freight costs with resulting greater

concentration of industry, will likely prolong the transition period.

Both producers and consumers are banking heavily on legislative action which will permit at least partial restoration of basing point pricing. The nub of the problem concerns freight absorption.

In the Cement decision of the U. S. Supreme Court last spring, which ruling set off the fireworks against basing point, zone and uniform delivered pricing in general, the question of freight absorption was not specifically ruled upon. However, the Court did hold that identical delivered prices, which resulted from freight absorption, indicated collusion among producers and was in violation of section 5 of the Federal Trade Commission Act which bars so-called unfair competition.

Furthermore, the Court maintained that basing point pricing as applied in the cement industry was collusive discrimination against buyers in violation of section 2 of the Clayton Act as amended by the Robinson-Patman Act.

Freight Absorption — In other words, the different net returns to the mills on sales, depending on distance of consumer from producing point as result of freight absorption, amounted to discrimination in that sales to nearby customers netted the mills more than did sales to distant buyers. On the face of this decision, quoting of competitive prices made possible through freight absorption would seem definitely out, though Federal Trade Commission counsel insist to this day this is not necessarily the case. Steel industry counsel, however, think otherwise.

These diverse legal views as to the import of the Supreme Court's decision in the Cement case make clear the urgent necessity for clarification of the antitrust laws with respect to freight absorption. However, pending such clarification the steel industry, whose pricing practice was almost identical with that in cement, has felt constrained, as a matter of legal prudence, to accept the broadest interpretation of the decision, abandoning the basing point system in favor of mill pricing.

Under the latter, such alleged price discrimination through freight absorption is impossible since all customers are quoted the same mill prices, and each buyer pays full delivery charges himself, except in those instances where delivered prices are requested of the mills, in which case the mill prices and actual freight charges are billed the customer separately.

Propitious Time — In going all out in interpreting the Supreme Court de-

LIGHT RAILS (Rail Steel)

Sweet's Steel Co., Williamsport, Pa.	4.70

AXLES

Bethlehem Steel Co., Johnstown, Pa.	5.20
Carnegie-Illinois Steel Corp., McKees Rocks, Pa.; Gary, Ind.	5.20
Standard Forgings Corp., Indiana Harbor, Ind.	5.20
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	5.20

TIE PLATES

Bethlehem Pacific Coast Steel Corp., Seattle	4.50
Bethlehem Steel Co., Steelton, Pa.; Lackawanna, N. Y.	4.05
Carnegie-Illinois Steel Corp., So. Chicago, Ill.; Gary, Ind.	4.05
Columbia Steel Co., Pittsburg, Calif.	4.20
Inland Steel Co., Indiana Harbor, Ind.	4.05
Republic Steel Corp., Pittsburgh	4.05
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.05

BOLT SPIKES

Bethlehem Steel Co., Lebanon, Pa.	6.15

JOINT BARS

Bethlehem Steel Co., Steelton, Pa.; Lackawanna, N. Y.	4.25
Carnegie-Illinois Steel Corp., Braddock, Pa.; Joilet, Ill.	4.25
Inland Steel Co., Indiana Harbor, Ind.	4.25
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.25

STANDARD TRACK SPIKES

Bethlehem Steel Co., Lebanon, Pa.	5.35
Colorado Fuel & Iron Corp., Minnequa, Colo.	5.35
Inland Steel Co., Indiana Harbor, Ind.	5.35
Jones & Laughlin Steel Corp., Pittsburgh	5.25
Republic Steel Corp., So. Chicago, Ill.; Youngstown	5.35
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	5.35
Youngstown Sheet & Tube Co., Indiana Harbor, Ind.; Struthers, O.	5.35

SCREW SPIKES

Bethlehem Steel Co., Lebanon, Pa.	8.00
Oliver Iron & Steel Corp., Pittsburgh	8.00

TRACK BOLTS

	Treated	Untreated
Bethlehem Steel Co., Lebanon, Pa.	8.50	8.25
Colorado Fuel & Iron Corp., Minnequa, Colo.	*	*
Oliver Iron & Steel Corp., Pittsburgh	8.50	8.25
Pittsburgh Screw & Bolt Corp., Pittsburgh	8.50	8.25
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	8.50	8.25

* ½ and ⅝-inch, 9.80; others, 8.00.

WIRE, MFRS. BRIGHT, LOW-CARBON

American Steel & Wire Co., Donora, Rankin, Pa.; Cleveland Joliet, Waukegan, Ill.; Duluth, Minn.	4.15
American Steel & Wire Co., Worcester, Mass.	4.45
Atlantic Steel Co., Atlanta	4.00
Bethlehem Steel Co., Johnstown, Pa.	4.15
Bethlehem Steel Co., Sparrows Point, Md.	4.25
Colorado Fuel & Iron Corp., Minnequa, Colo.	4.50
Colorado Fuel & Iron Corp., So. San Francisco	5.15
Columbia Steel Co., Pittsburg, Calif.	5.10
Continental Steel Corp., Kokomo, Ind.	4.25
Driscoll Wire Co., Shelton, Conn.	5.40
Jones & Laughlin Steel Corp., Aliquippa, Pa.	4.15
Keystone Steel & Wire Co., Chicago base	4.50
Mid-States Steel & Wire Co., Crawfordsville, Ind.	*4.50
Pittsburgh Steel Co., Monessen, Pa.	4.50
Portsmouth Steel Corp., Portsmouth, O.	4.70
Republic Steel Corp., Alabama City, Ala.; So. Chicago, Ill.	4.15
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.15
Western Automatic Mach. Screw Co., Elyria, O.	4.15
Wickwire Spencer Steel Division, Colorado Fuel & Iron Corp., Buffalo	4.50
Wickwire Spencer Steel Division, Colorado Fuel & Iron Corp., Palmer, Mass.	4.80
Youngstown Sheet & Tube Co., Struthers, O.	4.15

* Freight equalized with Birmingham and Pittsburgh in South and East.

WIRE, 16 GAGE

	Annealed Stone	Galv. Stone
American Steel & Wire Co., Cleveland; Waukegan, Ill.	9.05	10.55
Bethlehem Steel Co., Johnstown, Pa.	8.45	9.95
Bethlehem Steel Co., Sparrows Point, Md.	8.55	10.05
Columbia Steel Co., Pittsburg, Calif.	9.40	10.90
Continental Steel Corp., Kokomo, Ind.	9.05	10.10

WIRE, MB SPRING, HIGH-CARBON

American Steel & Wire Co., Donora, Pa.; Cleveland; Waukegan, Ill.; Duluth, Minn.	5.55
American Steel & Wire Co., Worcester, Mass.; Trenton, N. J.	5.85
Bethlehem Steel Co., Johnstown, Pa.	5.55
Bethlehem Steel Co., Sparrows Point, Md.	5.65
Columbia Steel Co., Pittsburg, Calif.	6.50
Johnson Steel & Wire Div., Pittsburgh Steel Co., Worcester, Mass.	5.85
Jones & Laughlin Steel Corp., Aliquippa, Pa.	5.55
Pittsburgh Steel Co., Monessen, Pa.	5.65
Portsmouth Steel Corp., Portsmouth, O.	5.30
Republic Steel Corp., So. Chicago, Ill.	5.55
Roebling Son's Co. (John A.), Trenton, N. J.	5.85
Wickwire Spencer Steel Division, Colorado Fuel & Iron Corp., Buffalo	5.55
Wickwire Spencer Steel Division, Colorado Fuel & Iron Corp., Palmer, Worcester, Mass.	5.85
Youngstown Sheet & Tube Co., Struthers, O.	5.55

WIRE, UPHOLSTERY SPRING

American Steel & Wire Co., Donora, Pa.; Cleveland; Waukegan, Ill.; Duluth, Minn.	5.20
American Steel & Wire Co., Worcester, Mass.; Trenton, N. J.; New Haven, Conn.	5.50
Bethlehem Steel Co., Johnstown, Pa.	5.20
Bethlehem Steel Co., Sparrows Point, Md.; Williamsport, Pa.	5.30
Columbia Steel Co., Pittsburg, Calif.	6.15
Jones & Laughlin Steel Corp., Aliquippa, Pa.	5.20
Republic Steel Corp., So. Chicago, Ill.	5.20

WIRE, MERCHANT QUALITY (6 to 8 Gage)

	Annealed	Galv.
American Steel & Wire Co., Donora, Rankin, Pa.; Cleveland; Joliet, Ill.; Duluth, Minn.	4.80	5,25
American Steel & Wire Co., Worcester, Mass.	5.10	5.55
Atlantic Steel Co., Atlanta	5.20	5.65
Bethlehem Steel Co., Johnstown, Pa.	4.80	5.25
Bethlehem Steel Co., Sparrows Point, Md.	4.90	5.35
Colorado Fuel & Iron Corp., So. San Francisco	5.75	6.20
Colorado Fuel & Iron Corp., Minnequa, Colo.	5.15	5.60
Columbia Steel Co., Pittsburg, Calif.	5.75	6.20
Continental Steel Corp., Kokomo, Ind.	5.15	5.60
Jones & Laughlin Steel Corp., Aliquippa, Pa.	4.80	5.25
Keystone Steel & Wire Co., Chicago and Pittsburgh base	5.15	5.60
Mid-States Steel & Wire Co., Crawfordsville, Ind.	*5.20	*5.65
Pittsburgh Steel Co., Monessen, Pa.	4.95	5.40
Republic Steel Corp., Alabama City, Ala.; So. Chicago, Ill.	4.80	5.25
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	4.80	5.25
Youngstown Sheet & Tube Co., Struthers, O.	4.80	5.25

* Freight equalized with Birmingham and Pittsburgh in South and East.

WIRE, COLD-ROLLED, FLAT

American Steel & Wire Co., Cleveland	5.00
American Steel & Wire Co., Worcester, Mass.	5.30
Continental Steel Corp., Kokomo, Ind.	5.00
Newman-Crosby Steel Corp., Cleveland or Pittsburgh base	5.55
Newman-Crosby Steel Corp., Worcester, Mass., base	5.75
Pittsburgh Steel Co., Monessen, Pa.	5.00
Wickwire Spencer Division, Colorado Fuel & Iron Corp., Buffalo	5.30
Wickwire Spencer Division, Colorado Fuel & Iron Corp., Worcester, Mass	5.75

WIRE, BRIGHT STAPLING

American Steel & Wire Co., Cleveland; Waukegan, Ill.	7.70
American Steel & Wire Co., Worcester, Mass.	8.00
Columbia Steel Co., Pittsburg, Calif.	8.05
Roebling Son's Co. (John A.), Trenton, N. J.	5.75

WIRE, BARBED

	Col.
American Steel & Wire Co., Donora, Rankin, Pa.; Joliet, Ill.; Duluth, Minn.	123
Atlantic Steel Co., Atlanta	126
Bethlehem Steel Co., Johnstown, Pa.	123
Bethlehem Steel Co., Sparrows Point, Md.	125
Columbia Steel Co., Pittsburg, Calif.	143
Colorado Fuel & Iron Corp., Minnequa, Colo.	130
Colorado Fuel & Iron Corp., So. San Francisco	145
Continental Steel Corp., Kokomo, Ind.	125
Jones & Laughlin Steel Corp., Aliquippa, Pa.	123
Keystone Steel & Wire Co., Chicago and Pittsburgh base	127
Pittsburgh Steel Co., Monessen, Pa.	128
Portsmouth Steel Corp., Portsmouth, O.	123
Republic Steel Corp., Alabama City, Ala.; So. Chicago, Ill.	123
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	123

WIRE, FINE & WEAVING (8-inch Coils)

American Steel & Wire Co., Cleveland; Waukegan, Ill.	7.70
American Steel & Wire Co., Worcester, Mass.	8.00
Continental Steel Co., Kokomo, Ind.	7.70
Portsmouth Steel Corp., Portsmouth, O.	7.55

cision in the broadest possible way, the steelmakers may have decided present boom times propitious for forcing the basing point issue to a definite conclusion. It is pointed out that since the Federal Trade Commission's case against the industry, instituted a year ago, likely would take years for a final decision, the steelmakers could easily have postponed the showdown on the basing point question for a long time to come.

Indications are legislative action will be taken over coming months to remove uncertainties over what pricing practices industry may follow in competing for business nationally.

From an investigation of the subject launched by the Senate Trade Policies Committee, headed by Sen. Homer E. Capehart (Rep., Ind.), it is hoped a pattern will be evolved which will remove existing legal difficulties preventing full play of competition in the national economy. At the same time a Senate Small Business Subcommittee, headed by Sen. Edward Martin (Rep., Pa.), is probing into the steel distribution problem.

The Capehart Committee probe concerns all pricing, not just that in steel.

With respect to the Senate Small Business Committee's distribution study it is concentrating on steel and is seeking to ferret out information which has not heretofore been available. For example, it has sent questionnaires to 15 large steel producers representing 80 per cent of the nation's producing capacity, asking "where," "how much," and "to whom," steel products are being distributed. Such data would provide the first industry-wide picture of geographical distribution of steel products, as well as the amounts producers are supplying affiliated steel consuming companies and warehouses.

Recently Senator Capehart pointed out that Congress on three occasions between 1936 and 1940, refused requests of the Federal Trade Commission to outlaw freight absorption. In his opinion, therefore, the Supreme Court decision in the Cement case, and its application by the lower courts and the Federal Trade Commission, have put a new pricing policy into effect without legislation by Congress.

Senator Capehart says his committee has no ax to grind and is not seeking to defend any form of pricing made possible through conspiracy or that is forced on buyers. The committee's sole interest is in ascertaining what pricing policies will:

1—Foster and promote competition in industry, advancing the American

free enterprise system.

2—Promote beneficial decentralization of industry in the furtherance of the national security.

3—Encourage favorable prices to consumers on manufactured articles they buy.

4—Cause shifts in population which will materially affect the future economic well-being of the nation.

FTC Interpretation Studied—Antitrust law administration and interpretation by the Federal Trade Commission are certain to get a good going over by the Senate committee. Recently, William Simon, general counsel for the committee, after lengthy analysis of Federal Trade Commission orders and court decisions, concluded no basing point system, uniform delivered price, uniform zone or systematic freight absorption to meet competitors' lower prices is valid if the commission chooses to say it is not.

The commission, he said, has established no rules defining what pricing policies will be considered unfair methods of competition, and it does not propose to do so. Consequently, it is not possible to define the limits of illegal pricing practices under the Federal Trade Commission Act.

That is where the pricing problem in steel and countless other industries stands today. Until such time as the fog of legal uncertainty concerning unfair selling practices, and freight absorption is removed steel pricing seems bound to continue in a state of confusion.

BOILER TUBES

(Per 100 feet)

O.D. Inches	B.W. Gage	Seamless* Hot-Rolled	Seamless* Cold-Drawn	Elec. Weld† Hot-Rolled	Elec. Weld† Cold-Drawn
1	13	....	$13.39	$13.00	$13.00
1¼	13	....	15.87	13.21	15.39
1½	13	$15.05	17.71	14.60	17.18
1¾	13	17.11	20.15	16.60	19.54
2	13	19.18	22.56	18.60	21.89
2¼	13	21.37	25.16	20.73	24.40
2½	12	23.54	27.70	22.83	26.88
2½	12	25.79	30.33	25.02	29.41
2¾	12	27.33	32.14	26.51	31.18
3	12	28.68	33.76	27.82	32.74
3¼	11	33.39	39.29	32.39	38.11
3½	11	35.85	42.20	34.78	40.94
4	10	44.51	52.35	43.17	50.78
4½	9	58.99	69.42	....	....
5	9	68.28	80.35	....	....
6	7	104.82	123.33	....	....

* Seamless boiler tube prices quoted by Babcock & Wilcox Tube Co., Beaver Falls, Pa.; by National Tube Co. on galvanized and on black for sizes 2¼ to 6 inches, inclusive.

† Electric weld boiler tube prices quoted by Babcock & Wilcox Tube Co., Beaver Falls, Pa., and Republic Steel Corp., Cleveland.

STANDARD WROUGHT IRON PIPE

(Discounts from list quoted by A. M. Byers Co., f.o.b. mill, Pittsburgh)

In.	Butt Weld Blk.	Butt Weld Gal.	In.	Lap Weld Blk.	Lap Weld Gal.
⅜	+59½	+93	1¼	+22	+50½
½	+20½	+50	1½	+15½	+43
¾	+10½	+39	2	+ 7½	+34
1 and 1¼	+ 4½	+30	2½-3½	+ 5	+29½
1½	— 1½	+26½	4	List	+23½
2	— 2	+26	4½-8	+ 2	+25
			9-12	+12	+34½

(*Continued on Page 62*)

ROPE WIRE

	Mild Plow	Plow	Improved Plow
American Steel & Wire Co., Cleveland; Donora, Pa.; Waukegan, Ill.	7.50	7.80	8.20
American Steel & Wire Co., New Haven, Conn.; Trenton, N. J.	7.80	8.10	8.50
Johnson Steel & Wire Div., Pittsburgh Steel Co., Worcester, Mass.	7.50	7.80	8.20
Pittsburgh Steel Co., Monessen, Pa.	7.50	7.80	8.20
Portsmouth Steel Corp., Portsmouth, O.	7.50	7.80	8.20
Roebling Son's Co. (John A.), Trenton, N. J.	7.80	8.10	8.50

WOVEN FENCE, 9 to 15½ Gage

	Col.
American Steel & Wire Co., Donora, Rankin, Pa.; Joliet, Ill.; Duluth, Minn.	109
Atlantic Steel Co., Atlanta	121
Bethlehem Steel Co., Johnstown, Pa.	109
Columbia Steel Co., Pittsburgh, Calif.	132
Colorado Fuel & Iron Corp., Minnequa, Colo.	116
Continental Steel Corp., Kokomo, Ind.	113
Keystone Steel & Wire Co., Pittsburgh and Chicago base	113
Mid-States Steel & Wire Co., Crawfordsville, Ind.	*114
Pittsburgh Steel Co., Monessen, Pa.	113
Republic Steel Corp., Alabama City, Ala; So. Chicago, Ill.	109
Tenn. Coal, Iron & Railroad Co., Fairfield, Ala.	109

* Freight equalized with Birmingham and Pittsburgh in South and East.

	Gage 9	Gage 11-12½	Gage 14½	Gage 17
Jones & Laughlin Steel Corp., Aliquippa, Pa.	119	114	109	
Bethlehem Steel Co., Johnstown, Pa.				183
Bethlehem Steel Co., Sparrows Point, Md.				186
Republic Steel Corp., Alabama City, Ala.				*175

* Also 18 Gage.

FENCE POSTS

	Col.	Net Ton
American Steel & Wire Co., Duluth, Minn.	114	
Bethlehem Steel Co., Johnstown, Pa.	115	
Colorado Fuel & Iron Corp., Minnequa, Colo.	122	
Republic Steel Corp., Moline, Ill.	116	
Sweet's Steel Co., Williamsport, Pa.		$123.50

BALE TIES (Single Loop)

	Col.
American Steel & Wire Co., Donora, Pa.; Joliet, Ill., Duluth, Minn.	106
Atlantic Steel Co., Atlanta	110
Bethlehem Steel Co., Sparrows Point, Md.	108
Colorado Fuel & Iron Corp., Minnequa, Colo.	113
Colorado Fuel & Iron Corp., So. San Francisco	130
Columbia Steel Co., Pittsburg, Calif.	130
Continental Steel Corp., Kokomo, Ind.	108
Mid-States Steel & Wire Co., Crawfordsville, Ind.	*115
Republic Steel Corp., Alabama City, Ala.; So. Chicago, Ill.	106
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	103

* Freight equalized with Birmingham and Pittsburgh in South and East.

NAILS & STAPLES, STOCK (To Jobbers)

	Col.
Portsmouth Steel Corp., Portmouth, O.	117

NAILS & STAPLES, STOCK (To Consumers)

	Col.	100 lb Keg
Angell Nail & Chaplet Co., Cleveland	124	
Alan Wood Steel Co., Conshohocken, Pa.		$6.75
American Steel & Wire Co., Donora, Rankin, Pa.; Joliet, Ill.; Duluth, Minn.	103	
American Steel & Wire Co., Worcester, Mass.	109	
Atlantic Steel Co., Atlanta	110	
Bethlehem Steel Co., Johnstown, Pa.	103	
Bethlehem Steel Co., Sparrows Point, Md.	105	
Colorado Fuel & Iron Corp., Minnequa, Colo.	110	
Columbia Steel Co., Pittsburg, Calif.	123	
Continental Steel Corp., Kokomo, Ind.	105	
Jones & Laughlin Steel Corp., Aliquippa, Pa.		5.20
Keystone Steel & Wire Co., Chicago and Pittsburgh base	109	
Mid-States Steel & Wire Co., Crawfordsville, Ind.	*113	
Pittsburgh Steel Co., Monessen, Pa.	126	
Portsmouth Steel Corp., Portsmouth, O.	117	
Republic Steel Corp., Alabama City, Ala.; So. Chicago, Ill	103	
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.	103	
Wheeling Steel Corp., Wheeling, W. Va.		6.75

* Freight equalized with Birmingham and Pittsburgh in South and East.

NAILS & STAPLES, NON STOCK

Columbia Steel Co., Pittsburg, Calif.	6.20
Republic Steel Corp., Alabama City, Ala; So. Chicago, Ill.	5.20

Representative Freight Rates from Selected Ste

(Minimum all-rail rates, including 3 per cent fed

TO ↓ FROM →	Bethlehem Pa.	Buffalo N.Y.	Canton Ohio	Chicago Gary	Cleve-land	Coatesville Pa.	Detroit Mich.	Johnstown Pa.	Lebanon Pa.	Lorain Ohio	Massillon Ohio
Connecticut—Bridgeport	37.08	56.65	66.95	81.37	70.04	39.14	71.07	57.68	41.2	70.04	66.95
New Britain	40.17	56.65	70.04	80.34	66.95	43.26	70.04	58.71	47.38	66.95	70.04
New Haven	39.14	56.65	66.95	81.37	66.95	40.17	71.07	58.71	45.32	66.95	66.95
Waterbury	39.14	54.59	70.04	80.34	66.95	41.2	70.04	57.68	45.32	66.95	70.04
Delaware—Wilmington	23.69	56.65	58.71	78.28	62.83	12.875	71.07	45.32	26.78	62.83	58.71
Illinois—Chicago	76.22	62.83	50.47	....	49.44	76.22	45.32	63.86	73.13	49.44	50.47
Moline	82.4	71.07	62.83	30.9	62.83	81.37	56.65	72.1	80.34	62.83	62.83
Peoria	80.34	70.04	57.68	29.87	57.68	80.34	54.59	70.04	78.28	57.68	57.68
Rockford	80.34	66.95	57.68	21.63	56.65	79.31	50.47	70.04	78.28	56.65	57.68
Rock Island	82.4	71.07	63.86	30.9	62.83	81.37	56.65	72.1	80.34	62.83	63.86
Indiana—Evansville	79.31	70.04	58.71	*41.2	57.68	78.28	57.68	70.04	76.22	57.68	58.71
Fort Wayne	71.07	53.56	39.14	†33.99	37.08	70.04	33.99	54.59	66.95	37.08	39.14
Indianapolis	73.13	58.71	47.38	‡37.08	47.38	72.1	45.32	57.68	71.07	47.38	47.38
South Bend	73.13	56.65	45.32	§25.75	43.26	72.1	37.08	58.71	71.07	43.26	45.32
Iowa—Davenport	82.4	71.07	63.86	30.9	62.83	81.37	56.65	72.1	80.34	62.83	63.86
Keokuk	84.46	73.13	65.92	35.02	65.92	83.43	62.83	74.16	82.4	65.92	65.92
Kentucky—Ashland	66.95	57.68	41.2	54.59	43.26	65.92	48.41	53.56	63.86	43.26	41.2
Louisville	74.16	65.92	53.56	47.38	50.47	73.13	50.47	63.86	72.1	50.47	53.56
Maine—Portland	57.68	65.92	76.22	85.49	73.13	58.71	76.22	71.07	63.86	73.13	76.22
Maryland—Baltimore	33.99	54.59	56.65	74.16	57.68	25.75	66.95	43.26	29.87	57.68	56.65
Massachusetts—Boston	49.44	58.71	72.1	83.43	71.07	53.56	73.13	66.95	54.59	71.07	72.1
New Bedford	49.44	63.86	73.13	84.46	72.1	53.56	74.16	70.04	56.65	72.1	73.13
Pittsfield	39.14	49.44	65.92	79.31	63.86	47.38	66.95	57.68	45.32	63.86	65.92
Worcester	47.38	57.68	71.07	81.37	70.04	49.44	72.1	65.92	53.56	70.04	71.07
Michigan—Detroit	66.95	41.2	37.08	45.32	35.02	70.04	....	53.56	65.92	35.02	37.08
Flint	66.95	43.26	41.2	41.2	39.14	70.04	20.6	56.65	70.04	39.14	41.2
Grand Rapids	73.13	53.56	47.38	37.08	45.32	73.13	33.99	62.83	72.1	45.32	47.38
Lansing	71.07	48.41	41.2	39.14	40.17	71.07	25.75	56.65	70.04	40.17	41.2
Saginaw	70.04	47.38	45.32	45.32	41.2	71.07	29.87	57.68	70.04	41.2	45.32
Traverse City	76.22	57.68	56.65	47.38	54.59	78.28	41.2	66.95	74.16	54.59	56.65
Missouri—St. Louis	82.4	72.1	63.86	39.14	63.86	81.37	58.71	72.1	80.34	63.86	63.86
New Jersey—Camden	20.6	54.59	58.71	78.28	62.83	16.48	70.04	45.32	25.75	62.83	58.71
Jersey City	26.78	54.59	65.92	80.34	65.92	31.93	70.04	50.47	35.02	65.92	65.92
Newark	23.69	54.59	65.92	80.34	65.92	31.93	70.04	50.47	35.02	65.92	65.92
Paterson	23.69	54.59	65.92	80.34	65.92	31.93	70.04	50.47	35.02	65.92	65.92
Trenton	20.6	54.59	62.83	78.28	63.86	18.54	70.04	47.38	29.87	63.86	62.83
New York—Binghamton	33.99	39.14	56.65	72.1	53.56	40.17	57.68	43.26	37.08	53.56	56.65
Buffalo	50.47	....	40.17	62.83	37.08	53.56	41.2	41.2	49.44	37.08	40.17
New York	26.78	54.59	65.92	80.34	65.92	31.93	70.04	50.47	35.02	65.92	65.92
Rochester	47.38	21.63	47.38	66.95	41.2	49.44	47.38	47.38	47.38	41.2	47.38
Schenectady	39.14	45.32	62.83	76.22	58.71	45.32	63.86	54.59	45.32	58.71	62.83
Syracuse	41.2	33.99	53.56	71.07	49.44	47.38	53.56	48.41	45.32	49.44	53.56
Utica	41.2	39.14	56.65	72.1	53.56	48.41	57.68	50.47	45.32	53.56	56.65
Ohio—Akron	58.71	40.17	10.815	50.47	12.875	57.68	37.08	39.14	54.59	16.48	11.33
Canton	57.68	40.17	....	50.47	18.54	56.65	39.14	37.08	53.56	22.66	° 6.43
Cincinnati	70.04	56.65	41.2	45.32	41.2	66.95	43.26	53.56	66.95	41.2	41.2
Cleveland	58.71	37.08	18.54	49.44	....	57.68	35.02	39.14	56.65	11.33	18.54
Columbus	63.86	48.41	30.9	47.38	31.93	62.83	37.08	45.32	58.71	31.93	30.9
Dayton	66.95	53.56	37.08	41.2	37.08	66.95	39.14	49.44	63.86	37.08	37.08
Hamilton	70.04	54.59	40.17	43.26	40.17	70.04	41.2	53.56	65.92	40.17	40.17
Middletown	70.04	54.59	39.14	45.32	39.14	66.95	40.17	50.47	65.92	39.14	39.14
Toledo	66.95	47.38	31.93	41.2	30.9	65.92	18.54	18.41	63.86	30.9	31.93
Youngstown	56.65	37.08	18.54	54.59	21.63	53.56	40.17	33.99	49.44	21.63	18.54
Pennsylvania—Altoona	40.17	41.2	40.17	66.95	41.2	39.14	56.65	14.42	33.99	41.2	40.17
Bethlehem	....	50.47	57.68	76.22	58.71	22.66	66.95	45.32	21.63	58.71	57.68
Easton	8.24	49.44	58.71	78.28	62.83	23.69	66.95	45.32	23.69	62.83	58.71
Erie	54.59	25.75	31.93	56.68	26.78	56.65	43.26	39.14	50.47	26.78	31.93
Harrisburg	26.78	48.41	50.47	73.13	53.56	21.63	65.92	35.02	11.33	53.56	50.47
Johnstown	45.32	41.2	37.08	63.86	39.14	41.2	53.56	....	39.14	39.14	37.08
Philadelphia	18.54	54.59	58.71	78.28	62.83	14.42	70.04	45.32	25.75	62.83	58.71
Pittsburgh	50.47	41.2	29.87	58.71	31.93	48.41	47.38	23.69	45.32	31.93	29.87
Reading	14.42	50.47	56.65	74.16	57.68	14.42	66.95	40.17	11.33	57.68	56.65
Scranton	29.87	43.26	56.65	74.16	56.65	33.99	62.83	41.2	31.93	56.65	56.65
Wilkes-Barre	25.75	45.32	56.65	74.16	56.65	31.93	62.83	40.17	30.9	56.65	56.65
Rhode Island—Providence	48.41	62.83	72.1	83.43	71.07	49.44	73.13	66.95	53.56	71.07	72.1
Virginia—Newport News	48.41	70.04	66.95	81.37	70.04	43.26	76.22	57.68	48.41	70.04	66.95
Norfolk	48.41	70.04	66.95	81.37	70.04	43.26	76.22	57.68	48.41	70.04	66.95
Richmond	48.41	65.92	63.86	78.28	65.92	41.2	73.13	53.56	43.26	65.92	63.86
Roanoke	54.59	70.04	58.71	72.1	63.86	58.47	66.95	53.56	49.44	63.86	58.71
West Virginia—Charleston	63.86	58.71	41.2	58.71	47.38	62.83	50.47	49.44	57.68	47.38	41.2
Huntington	65.92	57.68	40.17	56.65	45.32	63.86	48.41	50.47	62.83	45.32	40.17
Wheeling	54.59	45.32	23.69	57.68	31.93	53.56	45.32	31.93	49.44	31.93	23.69
Wisconsin—Kenosha	79.31	63.86	56.65	††21.63	54.59	78.28	48.41	66.95	76.22	54.59	56.65
Milwaukee	78.28	62.83	56.65	**21.63	54.59	78.28	45.32	66.95	76.22	54.59	56.65
Racine	79.31	63.86	56.65	**21.63	54.59	78.28	47.38	66.95	76.22	54.59	56.65

* Commodity rate—carload minimum weight 36,000 pounds.

† From Chicago; rate from Gary is 29.87 cents which is commodity rate—carload minimum weight 36,000 pounds.

‡ From Chicago; rate from Gary is 31.93 cents which is commodity rate—carload minimum weight 36,000 pounds.

§ From Chicago; rate from Gary is 22.66 cents which is commodity rate—carload minimum weight 36,000 pounds.

° Minimum charge $16.50 per car.

** Rate if 14.42 cents, carload minimum weight 80,000 pounds, on the following articles: Angles; band; bars; beams; channels; girders; hoop; piling; plate, not including armor, deck, terne or tin plate; sheet; strip steel; Tees and Zees.

†† Footnote (**) applies; also rate on wire, galvanized, plain, or

oducing Points to Some Important Consuming Centers

nsportation tax, in cents per 100 pounds for carload shipments)

FROM →	Pittsburgh Pa.	Portsmouth Ohio	St. Louis Granite City	Sparrows Point, Md.	Steelton Pa.	Syracuse N. Y.	Trenton N. J.	Weirton W. Va.	Williamsport, Pa.	Worcester Mass.	Youngstown, O.
nnecticut—Bridgeport	63.86	76.22	87.55	45.32	45.32	45.32	33.99	63.86	48.41	35.02	66.95
New Britain	65.92	76.22	86.52	49.44	48.41	43.26	39.14	65.92	50.47	29.87	66.95
New Haven	63.86	76.22	87.55	47.38	47.38	45.32	35.02	63.86	49.44	31.93	66.95
Waterbury	63.86	76.22	86.52	48.41	47.38	43.26	37.08	63.86	49.44	33.99	66.95
laware—Wilmington	50.47	65.92	82.4	21.63	29.87	48.41	18.54	50.47	39.14	49.44	56.65
nois—Chicago	58.71	54.59	39.14	74.16	73.13	71.07	78.28	58.71	71.07	81.37	54.59
Moline	70.04	63.86	31.93	81.37	79.31	76.22	83.43	70.04	78.28	86.52	65.92
Peoria	65.92	57.68	29.87	79.31	76.22	74.16	81.37	65.92	74.16	85.49	62.83
Rockford	65.92	62.83	39.14	79.31	76.22	73.13	81.37	65.92	74.16	84.46	62.83
Rock Island	70.04	63.86	31.93	81.37	79.31	76.22	83.43	70.04	78.28	86.52	65.92
iana—Evansville	63.86	53.56	35.02	76.22	76.22	76.22	80.34	63.86	74.16	85.49	63.86
Fort Wayne	48.41	45.32	49.44	70.04	65.92	63.86	72.1	48.41	63.86	76.22	41.2
Indianapolis	53.56	41.2	41.2	71.07	70.04	70.04	74.16	53.56	66.95	80.34	49.44
South Bend	53.56	50.47	49.44	72.1	70.04	65.92	74.16	53.56	66.95	79.31	48.41
a—Davenport	70.04	65.92	31.93	81.37	79.31	76.22	83.43	70.04	78.28	86.52	65.92
Keokuk	71.07	65.92	30.9	82.4	81.37	80.34	85.49	71.07	80.34	89.61	70.04
ntucky—Ashland	47.38	16.48	62.83	62.83	62.83	66.95	70.04	47.38	62.83	79.31	47.38
Louisville	57.68	45.32	45.32	72.1	72.1	72.1	76.22	57.68	71.07	83.43	56.65
ine—Portland	74.16	83.43	92.7	65.92	65.92	54.59	56.65	74.16	63.86	37.08	73.13
ryland—Baltimore	48.41	62.83	80.34	‡16.695	25.75	50.47	31.93	48.41	37.08	54.59	53.56
sachusetts—Boston	71.07	81.37	90.64	57.68	57.68	49.44	48.41	71.07	58.71	18.54	71.07
New Bedford	72.1	82.4	91.67	58.71	58.71	53.56	48.41	72.1	62.83	§§26.78	72.1
Pittsfield	63.86	76.22	84.46	50.47	48.41	39.14	40.17	63.86	48.41	31.93	63.86
Worcester	70.04	80.34	87.55	54.59	54.59	47.38	45.32	70.04	56.65	....	70.04
higan—Detroit	47.38	48.41	58.71	66.95	65.92	53.56	70.04	47.38	57.68	72.1	40.17
Flint	49.44	50.47	62.83	71.07	66.95	56.65	71.07	49.44	58.71	72.1	45.32
Grand Rapids	54.59	56.65	56.65	73.13	71.07	63.86	74.16	54.59	66.95	76.22	49.44
Lansing	50.47	50.47	57.68	71.07	66.95	57.68	72.1	50.47	63.86	74.16	45.32
Saginaw	53.56	54.59	63.86	72.1	70.04	56.65	72.1	53.56	62.83	73.13	48.41
Traverse City	63.86	63.86	65.92	78.28	74.16	66.95	78.28	63.86	71.07	79.31	57.68
souri—St. Louis	70.04	58.71	....	80.34	79.31	79.31	83.43	70.04	78.28	87.55	66.95
Jersey—Camden	50.47	66.95	82.4	26.78	30.9	47.31	12.875	50.47	37.08	47.38	56.65
Jersey City	57.68	71.07	85.49	39.14	37.08	45.32	20.6	57.68	41.2	41.2	62.83
Newark	57.68	71.07	85.49	39.14	37.08	45.32	16.48	57.68	41.2	41.2	62.83
Paterson	57.68	71.07	85.49	39.14	37.08	45.32	20.6	57.68	41.2	41.2	62.83
Trenton	53.56	66.95	83.43	31.93	31.93	45.32	....	53.56	39.14	45.32	57.68
York—Binghamton	49.44	70.04	80.34	47.38	39.14	23.19	39.14	49.44	31.93	47.38	50.47
Buffalo	41.2	57.68	72.1	54.59	48.41	33.99	54.59	41.2	40.17	57.68	37.08
New York	57.68	71.07	85.49	39.14	37.08	45.32	22.66	57.68	41.2	41.2	62.83
Rochester	47.38	63.86	74.16	50.47	45.32	23.69	49.44	47.38	37.08	53.56	41.2
Schenectady	58.71	73.13	83.43	49.44	47.38	31.93	39.14	58.71	41.2	37.08	57.68
Syracuse	53.56	66.95	79.31	50.47	45.32	....	45.32	53.56	37.08	45.32	48.41
Utica	56.65	70.04	80.34	53.56	47.38	16.48	47.38	56.65	40.17	41.2	53.56
o—Akron	30.9	41.2	63.86	56.65	53.56	50.47	62.83	26.78	48.41	71.07	17.51
Canton	29.87	40.17	63.86	56.65	50.47	53.56	58.71	21.63	48.41	71.07	17.51
Cincinnati	47.38	30.9	49.44	65.92	65.92	65.92	71.07	47.38	63.86	79.31	47.38
Cleveland	31.93	45.32	63.86	57.68	53.56	49.44	63.86	30.9	49.44	70.04	21.63
Columbus	37.08	29.87	56.65	58.71	57.68	58.71	65.92	37.08	54.59	74.16	37.08
Dayton	43.26	31.93	50.47	63.86	63.86	63.86	70.04	43.26	58.71	76.22	41.2
Hamilton	47.38	33.99	49.44	65.92	63.86	65.92	71.07	47.38	62.83	78.28	45.32
Middletown	45.32	35.02	50.47	65.92	63.86	63.86	71.07	45.32	62.83	78.28	43.26
Toledo	41.2	41.2	57.68	63.86	62.83	57.68	70.04	41.2	57.68	73.13	37.08
Youngstown	20.6	47.38	66.95	∋3.56	48.41	48.41	57.68	23.69	45.32	70.04	....
nsylvania—Altoona	30.9	54.59	73.13	40.17	31.93	45.32	43.26	33.99	26.78	63.86	37.08
Bethlehem	50.47	66.95	82.4	33.99	26.78	41.2	20.6	50.47	33.99	47.38	56.65
Easton	50.47	66.95	82.4	35.02	29.87	40.17	17.51	50.47	33.99	47.38	56.65
Erie	33.99	50.47	70.04	56.65	49.44	40.17	57.68	35.02	41.2	63.86	25.75
Harrisburg	41.2	62.83	79.31	25.75	°5.665	45.32	31.93	41.2	26.78	54.59	48.41
Johnstown	23.69	50.47	72.1	43.26	35.02	48.41	47.38	30.9	31.93	65.92	33.99
Philadelphia	50.47	66.95	82.4	26.78	30.9	47.38	12.875	50.47	37.08	47.38	56.65
Pittsburgh	....	47.38	70.04	48.41	41.2	53.56	53.56	14.42	39.14	70.04	20.6
Reading	48.41	63.86	81.37	30.9	17.51	43.26	22.66	48.41	31.93	49.44	53.56
Scranton	48.41	66.95	81.37	40.17	31.93	31.93	31.93	48.41	30.9	49.44	53.56
Wilkes-Barre	48.41	65.92	81.37	39.14	30.9	33.99	33.99	48.41	29.87	49.44	50.47
de Island—Providence	71.07	80.34	89.61	56.65	54.59	49.44	45.32	71.07	57.68	21.63	71.07
inia—Newport News	62.83	63.86	83.43	41.2	48.41	65.92	47.38	62.83	56.65	66.95	65.92
Norfolk	62.83	63.86	83.43	41.2	48.41	65.92	47.38	62.83	56.65	66.95	65.92
Richmond	56.65	57.68	81.37	33.99	41.2	63.86	47.38	56.65	49.44	66.95	62.83
Roanoke	57.68	47.38	74.16	45.32	48.41	66.95	54.59	57.68	56.65	72.1	62.83
t Virginia—Charleston	47.38	29.87	65.92	56.65	57.68	66.95	65.92	47.38	58.71	78.28	47.38
Huntington	45.32	16.48	62.83	58.71	58.71	66.95	66.95	45.32	62.83	80.34	45.32
Wheeling	18.54	40.17	65.92	50.47	48.41	56.65	57.68	11.33	45.32	72.1	30.9
consin—Kenosha	63.86	58.71	°°45.32	78.28	74.16	71.07	80.34	63.86	73.13	82.4	57.68
Milwaukee	63.86	62.83	°°45.32	78.28	76.22	70.04	80.34	63.86	72.1	81.37	58.71
Racine	63.86	58.71	°°45.32	78.28	74.16	71.07	80.34	63.86	73.13	82.4	58.71

tinned, carload minimum weight 80,000 pounds, from Chicago is 17.51 cents, and from Gary is 14.42 cents. (Wire rates apply on drawn or rolled iron or steel bars or rods, shaped in the drawing or rolling process; also on such bars or rods when bent, twisted or otherwise deformed, galvanized, ground, hammered, punched or sheared, but the rates will not apply if further work has been done.)

‡ Rate is 8.24 cents for Canton Railroad delivery, except on sheet steel the rate is $1.43 per 2000 pounds, minimum weight 56,000 pounds.

§§ Rate on nails; rope; wire; strip steel; strand, wire; and wire, is 18.54 cents.

°° From St. Louis; from Granite City rate is 41.2 cents, carload minimum weight 80,000 pounds, on the following: Bands; bar; beams; channels; girders; hoop; plate; sheet; strip steel; Tees and Zees.

STANDARD STEEL PIPE, T. & C.

(Discounts from list)

BUTT WELD

	A*		B*		C*		D*	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛	41.5	12.5	...	...	...	...	...	...
¼	39.5	14	...	...	...	...	...	...
⅜	36	9	...	...	...	...	...	...
½	43	22.5	43	22.5	42	21.5	40.5	16.5
¾	46	26.5	46	26.5	45	25.5	43.5	25.5
1	48.5	29.5	48.5	29.5	47.5	28.5	46	23.5
1¼	49	30	49	30	48	29	46.5	24
1½	49.5	30.5	49.5	30.5	48.5	29.5	47	24.5
2	50	31	49	30	49	30	47.5	25
2½, 3	50.5	31.5	49.5	30.5	49.5	30.5	48	25.5
3½, 4	44.5	25	...	...	...	...	...	...
LAP WELD							ELEC. WELD	
2	39.5	20	39.5	20	...	...	38.5	19
2½, 3	42.5	23	43.5	24	...	...	41.5	22
3½, 4	44.5	25	46.5	27	42.5	23	43.5	24
5 - 6	44.5	25	...	...	42.5	23	43.5	24
SEAMLESS								
2	38.5	19	27	7.5				
2½	41.5	22	32.5	13				
3	41.5	22	35	15.5				
3½, 4	43.5	24	38.5	19				
5 - 6	43.5	24	38.5	19				
7	43.5	23	...	...				

*Discounts are quoted by the following companies:

Standard Butt Weld Pipe

Column A, sizes ⅛ to ⅜-inch, inclusive, Fretz-Moon Co., Butler, Pa., and by Spang-Chalfant, Etna, Pa.; sizes ½ to 3 inches, inclusive, National Tube Co., Lorain, O., Spang-Chalfant, Youngstown Sheet & Tube Co., Youngstown, and Republic Steel Corp., Youngstown; sizes 3½ and 4 inches, Spang-Chalfant.

Column B, Jones & Laughlin Steel Corp., Aliquippa, Pa.

Column C, Pittsburgh Tube Co., Monaca, Pa., and Youngstown Sheet & Tube Co., Indiana Harbor, Ind.

Column D, Mercer Tube & Mfg. Co., Sharon, Pa.

Standard Lap Weld Pipe

Column A, Spang-Chalfant, Etna, Pa.

Column B, Jones & Laughlin Steel Corp., Aliquippa, Pa.

Column C, Youngstown Sheet & Tube Co., Indiana Harbor, Ind.

Standard Electric Weld

Column D, Republic Steel Corp., Youngstown, O.

Standard Seamless Pipe

Column A, sizes 2 to 6 inches, inclusive, National Tube Co., Lorain, O., Pittsburgh, Spang-Chalfant, Etna, Pa., and Youngstown Sheet & Tube Co., Youngstown; size 7 inches, National Tube Co.

Column B, Jones & Laughlin Steel Corp., Aliquippa, Pa.

LINE PIPE, T. & C.

BUTT WELD

	E*		F*		G*	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛	40.5					
¼	38.5	...	...	...	...	...
⅜	35	...	...	...	...	...
½	42	21.5	42	21.5	41	20.5
¾	45	25.5	45	25.5	44	24.5
1	47.5	28.5	47.5	28.5	46.5	27.5
1¼	48	29	48	29	47	28
1½	48.5	29.5	48.5	29.5	47.5	28.5
2	49	30	48	29	48	29
2½ & 3	49.5	30.5	48.5	29.5	48.5	29.5
3½ & 4	43.5	...	...	...	...	...
LAP WELD					ELEC. WELD	
	E*		F*		G*		H*	
	Blk.	Galv.	Blk.		Galv.	Blk.	Galv.
2	38.5	19	38.5		..	37.5	18
2½ & 3	42.5	23	41.5		..	40.5	21
3½, 4	45.5	26	43.5	41.5	22	42.5	23
5, 6	...	..	43.5	41.5	22	42.5	23
8	...	..	45.5	...	..	44.5	24
10	...	..	45	...	..	44	23.5
12	...	..	44	...	..	43	23.5
SEAMLESS							
	E*		F*				
	Blk.	Galv.	Blk.	Galv.			
2	37.5	18	26	6.5			
2½	40.5	21	31.5	12			
3	40.5	21	34	14.5			
3½-6	42.5	23	37.5	18			
8	44.5	24	40.5	20			
10	44	23.5	41.5	21			
12	43	22.5	40.5	20			

*Discounts are quoted by the following companies:

Line Butt Weld Pipe

Column E, sizes ⅛ to ⅜-inch inclusive, Fretz-Moon Co., Butler, Pa., Spang-Chalfant, Etna, Pa.; sizes ½ to 3 inches, inclusive, National Tube Co., Lorain, O., and Spang-Chalfant on black only; sizes ½ to 3 inches, inclusive, Youngstown Sheet & Tube Co., Youngstown, and Republic Steel Corp., Youngstown, except the latter on 2 inch (48 black and 29 galvanized) and 2½ and 3 inches (48.5 black and 29.5 galvanized); sizes 3½ and 4 inches, Spang-Chalfant.

Column F, Jones & Laughlin Steel Corp., Aliquippa, Pa.

Column G, Youngstown Sheet & Tube Co., Indiana Harbor, Ind., and Pittsburgh Tube Co., Monaca, Pa., except the latter on 1-inch (46 black and 27 galvanized) and 2½ and 3 inches (48 black and 29 galvanized).

Line Lap Weld Pipe

Column E, Jones & Laughlin Steel Corp., Aliquippa, Pa.

Column F, Spang-Chalfant, Etna, Pa.

Column G, Youngstown Sheet & Tube Co., Indiana Harbor, Ind.

Line Electric Weld Pipe

Column H, Republic Steel Corp., Youngstown; Youngstown Sheet & Tube Co., Youngstown, on sizes 8 and 10.

Line Seamless Pipe

Column E, Youngstown Sheet & Tube Co., Youngstown; National Tube Co., Lorain or Pittsburgh, and Spang-Chalfant, Etna, Pa., on black only.

Column F, Jones & Laughlin Steel Corp., Aliquippa, Pa.

STAINLESS STEEL, CHROMIUM NICKEL

(Cents per pound, f.o.b. mill)

Type No.	Bars, Wire, Shapes			Cold-Rolled Strip			Hot-Rolled Strip
	A*	B*	C*	A*	B*	C*	E*
301	28.50	28.50	28.75	30.50	30.50	32.00	24.25
302	28.50	28.50	28.75	33.00	33.00	33.75	25.75
303	31.00	31.00	31.50	36.50	36.50	39.75	30.00
304	30.00	30.00	31.25	35.00	35.00	35.75	27.75
308	34.00	34.00	34.75	38.75	38.75	43.00	31.25
309	41.50	42.00	43.00	51.00	52.00	56.25	41.00
310	56.00	56.00	59.00	65.00	65.00	57.25	56.50
316	46.00	46.00	48.00	55.00	55.00	57.25	46.00
317	57.50	57.50	60.00	66.00	66.00	69.50	57.00
321	34.00	34.00	34.75	44.50	44.50	45.75	34.50
347	38.50	38.50	39.75	48.50	48.50	50.25	38.75
403	26.00	26.00	26.00	33.50	33.50	32.50	26.50
405	24.50	24.50	24.25	32.00	32.00	32.00	25.25

STAINLESS STEEL, STRAIGHT CHROMIUM

410	23.00	23.00	22.75	27.00	27.00	26.50	21.25
414	23.00	23.50	22.75	27.50	27.50	26.50	21.50
416	23.50	23.50	23.25	33.50	33.50	28.25	28.00
420	28.50	28.50	28.75	43.50	43.50	43.50	29.50
430	23.50	23.50	23.25	27.50	27.50	27.00	21.75
430-F	24.00	24.00	23.75	36.00	36.00	29.75	29.50
431	23.50	24.00	23.25	28.00	28.00	27.00	22.25
440-A, B, C	28.50	28.50	28.75	43.50	43.50	43.50	34.50
446	32.50	33.00	33.00	60.00	60.00	62.25	45.00
501†	11.50	10.50	10.00	22.50	22.50	20.50	16.50
502†	12.50	11.50	11.00	23.50	23.50	21.50	17.50

STAINLESS STEEL, CHROMIUM NICKEL

Type No.	Sheets				Plates		
	A*	B*	C*	D*	A*	B*	C*
301	37.50	37.50	40.75	40.70	32.00	32.00	32.50
302	37.50	37.50	40.75	40.70	32.00	32.00	32.50
303	39.50	39.50	43.00	....	34.00	34.00	34.75
304	39.50	39.50	43.00	42.90	34.00	34.00	34.75
308	45.25	45.75	49.00	....	39.50	39.50	40.75
309	52.00	52.00	56.25	63.25	46.00	46.00	48.00
310	59.50	59.50	63.25	74.25	59.00	59.50	62.25
316	53.00	53.00	57.25	57.20	50.50	50.50	53.00
317	64.00	64.00	69.50	....	61.00	61.50	64.50
321	45.50	45.50	49.00	48.95	39.50	39.50	40.75
347	50.00	50.00	54.00	53.90	44.00	44.00	45.75
403	36.00	36.00	35.25	35.25	29.50	29.50	29.75
405	34.50	34.50	33.75	33.50	27.50	27.50	27.50

STAINLESS STEEL, STRAIGHT CHROMIUM

410	33.00	33.00	32.00	....	26.00	26.00	26.00
414	33.50	33.50	32.00	....	26.00	26.50	26.00
416	33.50	33.50	32.50	....	26.50	27.00	26.50
420	40.50	40.50	40.25	....	33.50	33.50	34.25
430	35.50	35.50	34.75	....	26.50	26.50	26.50
430-F	36.00	36.00	35.25	....	27.00	27.50	27.00
431	36.00	36.00	34.75	....	26.50	27.00	26.50
440-A, B, C	40.50	40.50	40.25	....	33.50	33.50	34.25
446	50.00	50.00	46.50	....	37.00	39.00	36.50
501†	24.00	24.00	19.25	....	15.50	18.00	14.50
502†	25.00	25.00	20.50	....	17.00	19.50	16.00

* Prices are quoted by following companies for items which they produce and are based at their production points with the exception of Firth-Sterling Steel Co., Universal Cyclops Corp., and Washington Steel Corp. which are quoting on a competitive basis:

Column A, Allegheny Ludlum Steel Corp.; Carnegie Illinois Steel Corp., except on type 317 bars, wire and shapes (57.00c) and on type 309 cold-rolled strip (52.00c); Crucible Steel Co. of America, except 317 bars, wire and shapes (57.00c), 446 type plates (35.50c), type 309 cold-rolled strip (52.00c).

Column B, Republic Steel Corp.; Armco Steel Corp., except on type 501 bars, wire and shapes (11.50c) and on type 502 bars, wire and shapes (12.50c).

Column C, Universal Cyclops Corp., Jessop Steel Co., Superior Steel Corp., Washington Steel Corp., Pittsburgh Steel Co., Firth Sterling Steel Co., McLouth Steel Corp.

Column D, Eastern Stainless Steel Corp.

Column E, Carnegie Illinois Steel Corp., which also quotes prices in Column A with exceptions noted above.

† Low (4 to 6 per cent) chromium.

Production points, but not necessarily for all types or products, include the following: Pittsburgh, Chicago, Cleveland, Detroit, Bethlehem, Canton, Massillon, Middletown, Watervliet, Dunkirk, Syracuse, Reading, Fort Wayne, Titusville, Brackenridge, Jersey City, West Leechburg, Baltimore, and Washington, Pa.

STAINLESS-CLAD STEEL

Cladding	PLATES				SHEETS	
	Lukens*		Jessop†		Jessop†	
	10%	20%	10%	20%	10%	20%
302	....	....	....	....	19.75	21.50
304	23.00	27.00	22.50	26.50	20.75	22.50
310	....	....	32.50	36.50	....	....
316	28.00	32.00	27.00	31.00	26.00	28.00
321	....	....	23.50	27.50	....	....
347	25.75	29.75	25.00	29.00	24.00	26.00
405	18.75	24.75	20.50	24.50	....	....
410	18.25	24.25	20.50	24.50	....	....
430	18.25	24.25	21.00	25.00	....	....

* Lukens Steel Co.'s prices are f.o.b. mill, Coatesville, Pa. † Jessop Steel Co.'s prices are f.o.b. mill, Washington, Pa., or Claymont, Del.

Pipelines Drain Western Steel

Building of long-range transmission lines of oil, gas and water, in this country and abroad, diverts substantial tonnages of material from other consumers

ONE chief factor in the West Coast steel shortage is the pressing need for steel to build and lengthen long-range transmission lines for natural gas, oil and water, according to F. B. DeLong, vice president in charge of sales for Columbia Steel Co., San Francisco.

As an example, Mr. DeLong cited long range natural gas lines from Texas to California which either have been built recently or are being planned for the near future. More than 100,000 tons of steel for the construction of one such line was furnished by U. S. Steel, of which Columbia is a subsidiary.

"That steel, if it had not been used for transmission pipe, could have supplied an important part of the standard pipe requirements for the Pacific Coast," Mr. DeLong said. "Both could not be done, however, and therein lies an important facet of the steel shortage problem."

Still Growing—The urgent need for additional gas transmission lines arises from the great growth of the West Coast in recent years. In the last seven years population has increased 40 per cent and is still growing. A population of 14 million is forecast for the near future. In addition, manufacturing employment on the West Coast is 64 per cent higher than in 1940. These gains have brought shortages in many products, and especially have made for a scarcity of steel more severe than in other parts of the country.

Expanded construction of pipe lines also embraces the oil and water industries, and the scope of these operations is international. A large tonnage of steel being produced in the West is being used for construction of oil lines overseas, and "many have wondered why such tonnage was being used for that purpose" when such an acute shortage existed in this country.

Expected Business Decline — The reason, Mr. DeLong explained, is this: "At the time the Geneva Steel plant was acquired by U. S. Steel, soon after the war ended, most economists and business leaders expected and predicted declining business activity. At that time we were faced with the problem of marketing 500,000 to 600,000 tons of plates annually from the newly purchased Geneva plant in a market which never before, in peacetime, had been able to sell more than one-fifth of that amount . . .

"It is not surprising, therefore, that contracts were willingly made for these foreign pipelines, particularly when construction of the lines had the encouragement and permission of the government."

Within the U. S. itself, needs for pipelines of various kinds affect the steel supply on the West Coast, Mr. DeLong said. He cited, for instance, the fact that a shortage of gas in Pittsburgh, last year threatened to curtail steel production. Such a curtailment, he said, would have hurt the West Coast seriously, as considerable tonnages of steel move from Pittsburgh to the West Coast. Columbia Steel, therefore, was asked to contribute to a pool of steel plate to allow construction of a new loop line into Pittsburgh.

Mr. DeLong emphasized that the steel shortage on the West Coast was part of a steel shortage throughout the nation and not a localized problem.

Employment at Peacetime High

NUMBER of wage earners in the Los Angeles area rose to record peacetime heights in August, with worker totals increasing to 244,100 from 239,000 in July, the California State Department of Industrial Relations discloses.

More than half the increase was in nondurable goods industries. In August, 1947, the area's work force was numbered at 234,800.

Fears Railroad Nationalization

NATIONALIZATION of American railroads is more than a remote possibility in the opinion of E. G. Plowman, vice president in charge of traffic for U. S. Steel Corp., expressed recently before the Pacific Traffic Club in San Francisco.

Mr. Plowman pointed out that nationalization of the railroads is a "growing hazard" because nearly all main railroad systems in the world outside the U. S. are now nationalized.

"The industrial and commercial traffic managers of the United States can and must play a major role in avoiding and preventing nationalization", he said. "Here is our opportunity and our obligation. Private enterprise in American transportation has made valuable for all shippers four great rights or privileges. These privileges are worth fighting for.

"First, every American shipper has had available to him great freedom in selection of an appropriate carrier, and in routing via that carrier from origin to destination.

"Second, under nationalized transportation conditions, to what extent can shippers use their own vehicles in transportation of their own goods, including supplies and products?

"Third, it has always been assumed by American shippers that their industry or companies were entitled to share to some extent in the savings resulting from efficiency in transportation of their own goods in the form of lower freight rates.

"Fourth, American shippers have always been able to take full advantage of the right of a new enterprise to go into the transportation business. American industry thrives on this type of progress, this evolution that keeps each kind of transportation seeking always to improve itself. Nationalization on the other hand retards this kind of change and may even eliminate it entirely."

Columbia To Open New Mill

COLUMBIA Steel Co.'s new sheet and tin plate mill at Pittsburg, Calif., will be opened formally Oct. 21. Open house will be held at the mill Oct. 22.

Top officials of U. S. Steel Corp. will be present at the dedication as will a distinguished list of national state, county and municipal officials.

The $25 million new cold reduction sheet and tin plate mill, which is part of U. S. Steel's $800 million nationwide postwar expansion program, occupies 24½ acres of the plant's 400 acres. It will be one of the world's most modern mills of its type.

General Engineering Sold

GENERAL Engineering & Drydock Corp., with plants in Alameda and San Francisco, Calif., has been sold to the Loyola University Foundation of Los Angeles. Fixed assets of the company are valued at about $10 million.

In addition to shipbuilding, ship repair and operation of a general machine shop, General Engineering is manufacturing a woodworking product, pistols and machine guns, some plane parts, and it plans to enter the electronics field.

Windows of Washington

By E. C. KREUTZBERG *Washington Editor, STEEL*

Commission on government reorganization sees present tax burdens siphoning away capital needed for perpetuation of industry

WHEN Herbert Hoover appeared at the National Press Club recently—his first meeting with the Washington news correspondents in 16 years—he received the warmest ovation in Press Club history. While Mr. Hoover was president he had the affection and respect of the newsmen; he frequently took them into his confidence and was always frank and honest. Mr. Hoover has matured since then, and some newsmen thought that history might have been changed considerably in the 30s had he then exhibited the personality that is his today. He now has an imperturbability, a fluency of speech and a salty humor in marked contrast to the grave, worried demeanor he wore most of the time he occupied the White House.

Mr. Hoover addressed the Press Club as chairman of the Commission on Organization of the Executive Branch of the Government. The commission's work is being done, he said, by 22 task groups, each engaged on a specific study. More than 250 leading citizens who have no other interest than the public welfare, he said, are active in the work. Reports of these groups will start to flow in to the commission in November and December, whereupon the commission will pass on the recommendations received. Only when the reports have been thoroughly weighed will the commission undertake preparation of its report to Congress.

"We know we are in for plenty of homework," said Mr. Hoover, "but we are ready for it. Our reports, incidentally, will be published in printed form, but they will be very voluminous and will not be read by many people."

Tax Burden Heavy—Laying his chief emphasis on the cost of government, Mr. Hoover warned that present tax burdens are so great and such a drain on the economy that they seriously threaten to "curtail the whole economic and social advance of the United States. We have not socialized industry, but we have come close to socializing savings into the government," he said. "The tax burden is so heavy that we are drawing fundamental savings into the treasury of the United States. We saw evidences of this last year in the large amounts of long-term capital borrowed from banks, instead of investors, a process that cannot go on for long. If this situation is not changed, we will come to the point where the only source of capital will be the government."

Many new federal projects, worthwhile as they may be, must be deferred until the overburdening tax situation is corrected, he declared.

Would Enlarge Cabinet—The commission, said Mr. Hoover, will recommend more "working vice presidents"—which means more cabinet members—to relieve the load on the President and permit him to concentrate on major problems of national and international import.

"Between 60 and 80 independent agencies are directly under the President, in addition to the ten great departments," said Mr. Hoover. "This is too much. And we are finding a great deal of overlapping and duplication of activities which can be eliminated in the interest of greater efficiency. We have found 26 government agencies from which adroit citizens can borrow money."

While Mr. Hoover felt that the number of government employees should and can be drastically reduced, he did not favor any mass firings. Rather, he said, there should be limited replacements of the large numbers of employees who leave government employment each year.

Stressing the fact that the commission is non-partisan, Mr. Hoover said it decided early "that our mission is not to dig up mud and dirt but to work along strictly constructive lines. Its findings," he concluded, "will require the support of all segments of the community."

The commission, of course, has power to make only recommendations, and whatever action results from its report will depend on the next Congress.

FTC Sues To Collect $735,000

BEARING out the judgment of the steel, cement and other industries that it may be exceedingly costly to defy cease-and-desist orders of the Federal Trade Commission, the commission has just filed a complaint in the United States District Court for Northern Illinois in which it asks collection of civil penalties of $735,000 from the Canadian Ace Brewing Co., Chicago. The commission ordered the Ace company to refrain from using the name "Canadian" in connection with its beer and ale unless accompanied by an explanation that the product was brewed in the United States. The commission alleges 147 violations and it asks forfeiture of $5000 for each violation.

Carpenter Heads Munitions Board

AFTER DOING a splendid organizational job as chairman of the Munitions Board, Thomas J. Hargraves has resigned to go back to his old job of running the Eastman Kodak Co., Rochester, N. Y. His successor is Donald F. Carpenter, vice president, Remington Arms Co. Inc., Bridgeport, Conn., and a member of the corporation of the Massachusetts Institute of Technology, Cambridge, Mass. Mr. Carpenter became deputy to the Secretary of Defense in atomic energy matters on Apr. 8, 1948, and was made chairman of the Military Liaison Committee of the Atomic Energy Commission. Prior to this appointment he had served from October, 1947, as a member of the industrial advisory group of the Atomic Energy Commission.

By another White House announcement, William Webster, New England Electric System, Boston, has been appointed chairman of the Military Liaison Committee. A graduate of the United States Naval Academy in 1920 and of the Massachusetts Institute of Technology in 1924, he served with the Navy and later was a naval architect. He went with the New England Electric System in 1928 and in 1942 was promoted to vice president. He served as a management consultant with the Office of Price Administration, and later was a member of the National Defense Research Committee.

Gets High-Price Talent Free

ONE of the finest instances of the willingness of private citizens to help solve public problems, when called on to do so, occurred at the organizational meeting of the Senate Trade Policies Committee. This is the committee headed by Sen. Homer E.

thousands will learn the meaning of the new dimension in selective surface hardening ✻

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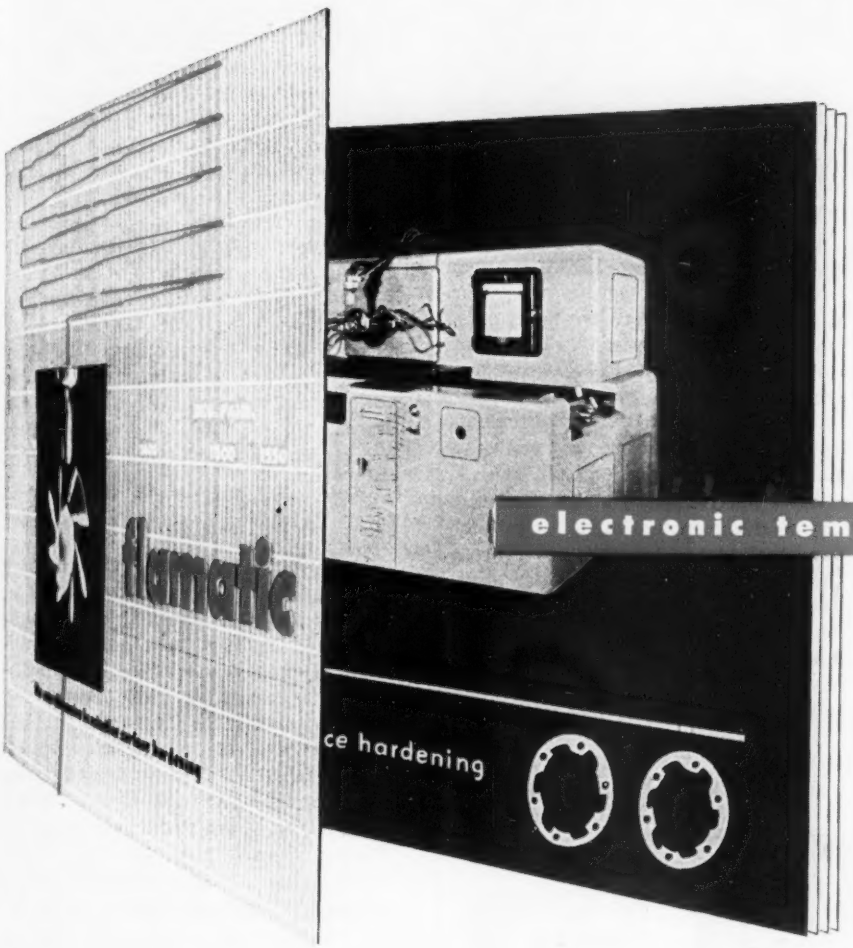

Whether you make, buy, process, or use heat treated parts, join the thousands who will see the Cincinnati Flamatic Exhibit at the Metal Show – featuring two difficult surface hardening jobs in actual production:

- cams for automatic torque converter transmissions
- take-off drive shafts for gear reduction units.

You will see how electronic temperature control – the new dimension in selective surface hardening – has led to higher physicals, better uniformity, faster production, and lower costs than ever before obtainable. Talk with Flamatic engineers, get specific data that will help you apply Flamatic to your requirements . . . Don't miss the Show! Don't miss Flamatic!

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NATIONAL METAL SHOW • BOOTH 1510

THE CINCINNATI MILLING MACHINE CO.

CINCINNATI

Cincinnati 9, Ohio, U.S.A.

Capehart (Rep., Ind.) and seeking answer to the question: What pricing policies may be independently and competitively pursued by businessmen?

To get practical assistance from men familiar with the problems involved, Senator Capehart had appointed a 47-member Advisory Council. Headed by Dr. Melvin T. Copeland of the Harvard School of Business Administration, the committee consists predominantly of business executives, but also has a liberal sprinkling of men from labor, farm and other organizations. When the roll was called, every one of these men without exception was present, despite the fact that many of them came to Washington from distant parts of the country, and despite the fact that all are paying their own expenses.

The Advisory Council, which will hold its next meeting in Chicago, Oct. 21, represents an approach on public problems which Senator Capehart hopes will be copied by other congressional committees in the future. Every congressional committee, of course, is given an appropriation within which it has to live, and in organizing a staff of experts it does the best it can. Usually an executive director, a general counsel and a number of investigators are employed, and the results frequently are not as satisfactory as hoped. In appointing his Advisory Council, Senator Capehart called in executives who formulate price policies and who are experts in talking about merits and demerits of these policies and their consequences. Thus he is getting assistance which no congressional appropriation would enable him to buy.

Signs of the Times

MORE INQUIRIES and projects having to do with iron and steel are coming to the attention of government agencies than usual. Some people with low-grade iron ore in the Carolinas, Texas and other states want to know whether the time has come when they could interest the steel industry in buying their properties.

The Office of Industry Cooperation, in particular, is receiving a heavy mail and numerous visitors, who want to know whether there isn't some possible way in which they could get steel under the allocations program. Unless they are in an industry covered by an allocations agreement they do not get much encouragement.

Several sections of the country are working up sentiment for promoting steel plants to serve their areas. Joseph D. Henderson, managing director of the American Association of Small Businesses, New Orleans, has been in Washington recently to develop some support for an integrated or semi-integrated steel industry to be located near New Orleans. It is understood that he has arranged to have John H. Morris, Calmes Engineering Co., New Orleans, do a promotional job on this plan.

The New England Council is behind a plan to have an integrated steel plant located in New England so that New England consumers will be able to enjoy lower freight rates on many of the steel products they now bring in from afar. The council has a voluminous plan made up for it by the Econometric Institute.

Still another phenomenon is the effort which several steel companies are making to get steel consumers to move plants to locations alongside their mills. They are selling the attractions of their freight advantage territories. In one case, a co-operative job has been launched in selling the advantages of an entire district. This is being done by the Pittsburgh Industrial Development Council which has prepared a handsome brochure pointing out the advantages of a plant in the Pittsburgh district on account of its steelmaking pre-eminence.

ON THE CARPET: Robert M. Mistrough, New York exporter, accused of violating export license regulations, told a Senate investigating committee he coated scarce iron soil pipe with cement to "preserve" it, not to try to put it in a license-free category of cement pipe. One senator called Mistrough's story "incredible" and "fantastic"

How To Get Along With Labor

A NEW 78-page booklet published by the National Planning Association, 800 Twenty-first street N. W., Washington 6, D. C., is devoted to an unusual theme—causes of labor-management harmony. The booklet, by Clark Kerr and Roger Randall, of the University of California Institute of Industrial Relations, tells about the plans under which the Crown Zellerbach Corp., San Francisco, and the Pacific Coast Pulp and Paper Industry have enjoyed industrial peace over a long span of years.

Aid to Manufacturers

WORK of the new U. S. Cataloging Agency, created by the Secretary of Defense to function under the supervision of the Munitions Board, will be of increasing interest to manufacturers bidding on supplies and equipment for the Army, Navy and Air Force. It will standardize nomenclature and the listing of hundreds of thousands of items purchased by the armed services. Not only will identical items have identical names and descriptions but, in a later phase, items which differ slightly from similar items will be eliminated. The effect will be to encourage manufacturers to intensify the trend, developed in World War II, toward complete standardization of like products, so that the product of one can be used in lieu of the product of another manufacturer.

Unrest Clouds Recovery

Financial crisis made worse by increases in workers' wages. Token strikes hurt industry

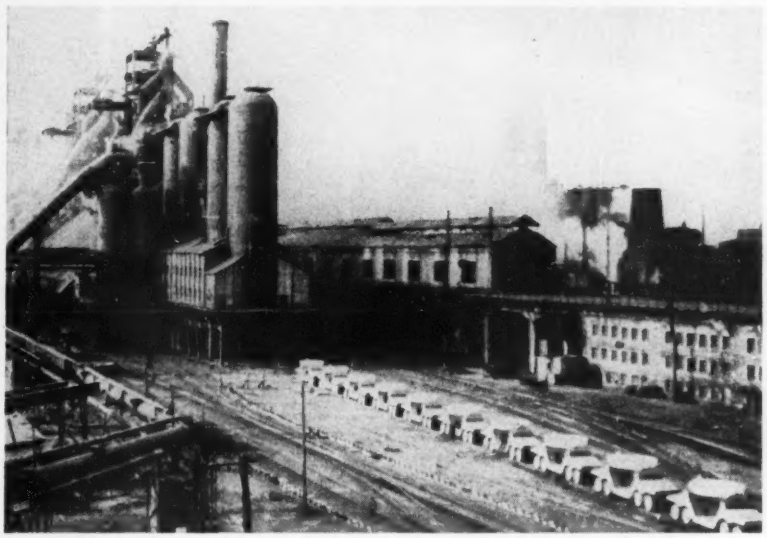
PARIS

INCREASES in workers' salaries recently granted by the French government will aggravate the already serious financial crisis, in the opinion of many experts but they were necessary in order to obtain the backing of the Socialist party in forming a government. In addition, Communist and non-Communist trade unions are backing token strikes which are seriously affecting some sectors of French industry.

Industrial output is 12 per cent above the 1938 monthly average and there is an excellent crop this year which would help to balance the nation's economic situation if the government were willing to make decisions without considering political effects.

Output of coal during July was 102 per cent of the 1938 monthly average, 1 per cent lower than the preceding month. Coal production in the Saar, at 96 per cent of the 1938 monthly average, was the highest since the end of the war and represented an increase of 7 per cent over the June total. Imports of coal in July, including 1,005,000 tons from the United States, were the highest for the year and exceeded the 1938 average by 7 per cent. Output of iron ore for July was 75 per cent of the 1938 monthly average, up 4 per cent from June.

Production of pig iron in July increased still further and reached a record level of 121 per cent of the 1938 monthly average, totaling 607,000 tons. Production of steel ingots and castings was 641,000 tons for the month. The French heavy industry as a whole attained a production figure which was 124 per cent of the 1938 monthly average.



BEHIND THE URALS: Russian propaganda sources in recent months have been emphasizing the development of that country's industry in Siberia. Whether Soviet "news releases" about the huge growth of industry behind the Urals is intended to impress Russia's satellites or the United States is questionable. Above is one of a series of Soviet photos, showing the Magnitogorsk Iron & Steel Works. Under the current 5-year plan, Russian sources say, blast furnaces of this type are scheduled to produce twice as much iron in 1950 as they did in 1940. Photo from NEA

Steady Progress in Belgium

LIEGE, BELGIUM

CONTINUOUS progression of the steel industry in Belgium and Luxemburg can be easily seen as output of steel ingots and castings continues to rise steadily. July output in Belgium increased to 267,117 metric tons from the June level of 235,800 metric tons.

In Luxemburg there was a slight decline to 198,033 tons of steel ingots and castings from the June level of 209,228 tons, although the figure was above the average of 188,756 tons for the first seven months of the year. There are, at present 45 blast furnaces in operation in Belgium and 22 in Luxemburg.

Exports of steel products, for the first seven months of the year, have reached a total of 1,867,000 metric tons as compared with 1,292,000 for the same period in 1947. Increase of steel prices and freight rates in the United States and England have improved the competitive position of Belgium.

Important orders have been booked for Turkey and Argentina but there are some financial difficulties with respect to the latter country that must be settled. An early settlement is hoped for since Argentina is one of Belgium's important steel customers. There is also an agreement being negotiated with Russia to exchange steel for food products.

On the home market, deliveries are normal for all products except certain kinds of plates and sheets. Scrap prices have steadied because of an increased demand, primarily for open-hearth scrap.

Steel Mill Output Increases

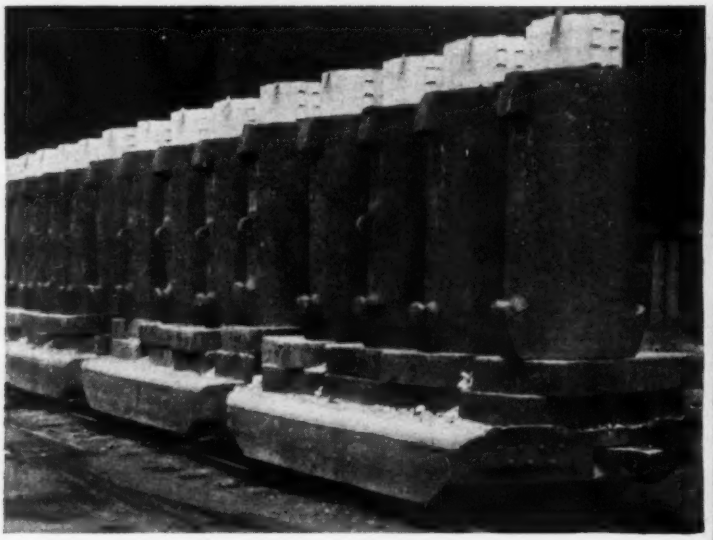
DUSSELDORF, GERMANY

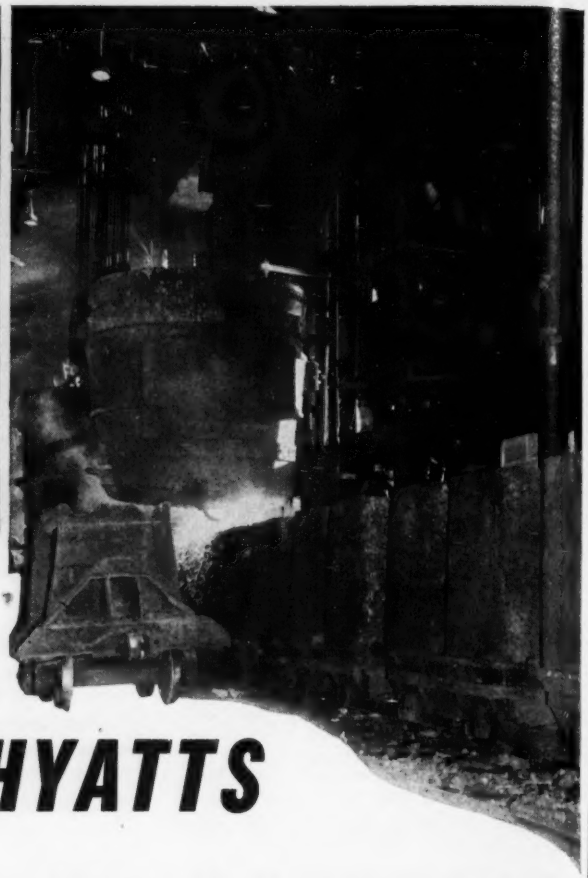
SHOWING the effects of American influence which favors maximum steel output in the Ruhr, German steel production is gaining momentum and the production target for the year has been raised from 6 to 8.5 million tons. There are, however, a number of supply problems to be solved with insufficient supply of ore heading the list.

Imports of Swedish ore are expected to be well below the 1.4 million tons contracted for this year and there are serious doubts that the 3.5 million tons contracted for delivery next year will be forthcoming. German steelmakers contend that the shortage of ore will necessitate higher scrap loads for their open hearths and maintain that American estimates of the availability of scrap in Germany are fantastic. Some of them say that the 1.2 million tons which are contracted for delivery to the United States this year represent the maximum scrap tonnage available and further tonnage can be collected only at greatly increased cost.

Considerable indignation is expressed among German steelmakers at the refusal of the German Economic Council to grant a price rise of 19 marks per ton. Bizonia's Foreign Trade Bank will subsidize foreign ore imports to keep price at 18 marks per ton as long as steel prices remain unchanged.

Annual level of steel production is now at 6 million tons with August output of 510,000 tons of ingots, representing an increase of 50,000 tons over July.





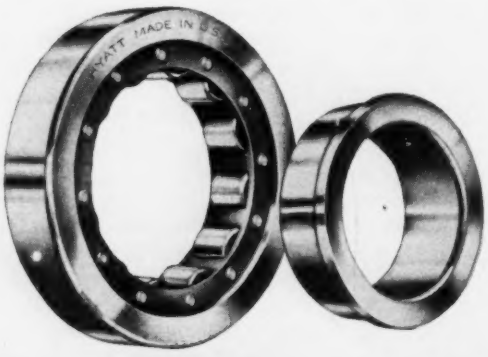
PROVEN MAINTENANCE SAVINGS ON LADLE CRANES, CHARGERS AND MILL MOTORS WITH.... HYATTS

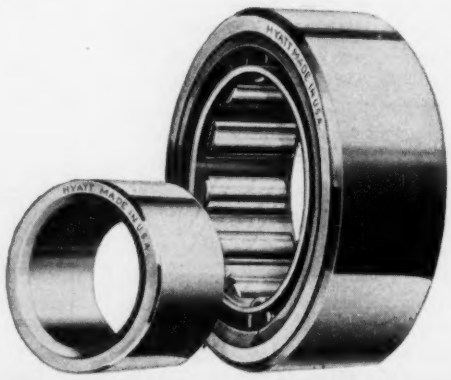
Hyatt Roller Bearings throughout the majority of open hearth ladle cranes and charging machines help keep axles, shafts and gears in proper mesh and alignment. The result is smoother, quieter operation and reduced power and maintenance requirements.

The application of Hyatt Roller Bearings to ladle crane hook block sheaves has resulted in substantial savings in cable replacement and general maintenance. Free turning sheaves permit faster, easier handling and eliminate the fraying of cables.

In the mill motors which power steel mill equipment Hyatt Roller Bearings are the choice of motor builders. Hyatts are constantly demonstrating their ability to shave costs.

For further information write to Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey; Detroit, Chicago, Pittsburgh and Oakland, California.





HYATT ROLLER BEARINGS

By A. H. ALLEN *Detroit Editor, STEEL*

Mirrors of Motordom

New Olds V-8 engine, with 7.25 to 1 compression ratio, demonstrated at Lansing. Unit performs smoothly. Will be built in remarkably co-ordinated new plant

WHEN asked what he considered the "outstanding thing" about the new Oldsmobile V-8 valve-in-head engine, Charles F. Kettering, General Motors research consultant, replied with characteristic aplomb: "Simply that it will run."

There was no mistake that it would run, and run smoothly and powerfully, as proved by test cars in which members of the press rode at the recent Lansing, Mich., demonstration. Mr. Kettering's remark was typical of his humor and modesty. He would have preferred the engine not be identified with his name at all, describing it as merely the first significant turn in the road to new thinking on engine and fuel relationships; where it will lead eventually no one knows for a certainty. Much of course depends on oil companies and their ability and willingness to "alloy" suitable gasolines for high-compression engines.

At present there is not available throughout the country gasoline of an octane rating permitting operation of engines with compression ratios much beyond the 7.25:1 adopted for the Olds engine, without annoying detonation. When 92 research octane gas is on tap generally, the 12.5:1 engine can become a reality, with the expected 30-40 per cent gain in economy.

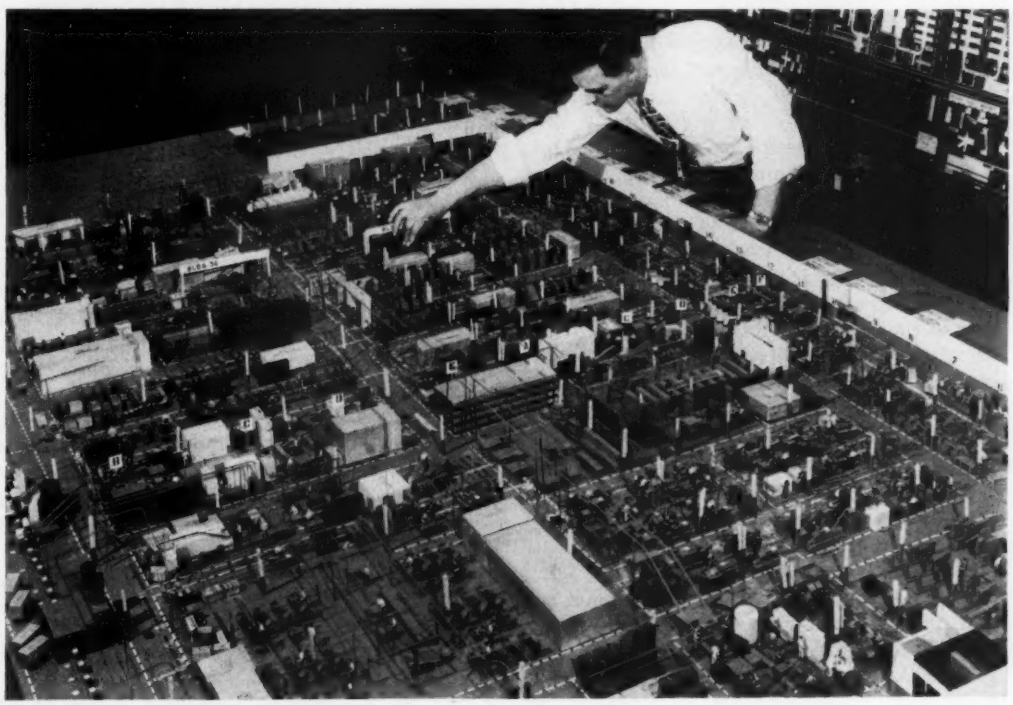
Can Be Stepped Up—Basically, the new Olds V-8 is a high-compression design and can be stepped up to the desired peak merely by changing cylinder head design. It has the necessary rugged block, five main bearings, shorter stroke and slower piston speeds which reduce friction losses and permit absorbing the high explosion pressures of the 12.5:1 engine. Net gain in mechanical efficiency of the unit, against the former L-head straight eight, is estimated to be 4 per cent.

Horsepower is boosted from 115 to 135, partly from the gain in efficiency and partly from the increase in piston displacement from 257 cubic inches in the straight eight to 304. The engine is 10 inches shorter than the 43-inch straight eight, and considerably increased in girth because of the V-8 arrangement. Designwise it is one of the neatest and most compact power packages yet evolved by the automobile industry. Gain in economy over the straight eight is estimated to be on the order of 1 mile per gallon, despite the increased horsepower.

New Plant To Build It—Slick as the V-8 engine is, it pales in comparison alongside the beautifully co-ordinated $10 million plant developed to build it. The array of elaborate transfer-type machine tool equipment, conveyor lines, assembly fixtures, test stands and inspection devices surpasses description. The operation is about as close to being completely automatic from the standpoint of removal of metal as is possible.

While not much is being said about the point, estimates suggest that labor requirements are not much over 20 per cent of that in conventional engine-building plants. The brains and the push all have been delegated to electrically and hydraulically controlled arms and fingers, interconnected through miles of wire and thousands of relays to the point where manual effort is confined to pushing control buttons and accomplishing such maintenance work on the machines as may be required by occasional breakdowns.

Scale Model First—Long before the 169,000 square foot plant began to take shape, the Olds methods engineering department undertook con-



Model layout of the new Olds plant which will produce the new Kettering engine is shown here. The 8 x 12-foot model, built on a scale of ¼-inch to the foot, includes 3200 pieces put together with wood, wire and glue, and is complete to the last details. Labor savings resulting from the remarkable co-ordination of the plant may be as high as 80 per cent

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struction of a three-dimensional model of the entire area, on a scale of ¼-inch to the foot. An accompanying illustration shows the completed 8 x 12-foot model and its 3200 individual pieces put together with wood, wire and glue. The layout includes everything, down to the last machine operator and inspector positioned at their proper stations. As may be imagined, the construction of such a "toy" is quite costly and tedious but it is of immeasurable assistance to engineers and production men in planning the best locations of overhead conveyors, air conditioning equipment, underfloor chip conveyors, stock slides, compressed air lines, water mains, electrical conduits, lighting fixtures, machines, stock and access aisles. Every department having a part in the operation or maintenance of the plant was invited to make changes considered necessary and they were incorporated in the model.

Most of the large light-colored blocks in the illustration of the miniature layout represent stocks of engine components awaiting processing or assembly. There is no central stock area from which material is fed to the various departments. Floats are kept near the area where they are required and are brought from the outside directly to these points. In general, flow of material is from the right to the left in the illustration, final assembly stations being along the left-hand side of the model, moving toward the foreground. Water-brake dynamometer engine test stands are in the left foreground.

Thirty Engines an Hour—Capacity of the plant is 30 engines per hour, and single-shift employment is estimated at about 750, which figures roughly to 25 man-hours per engine for machining, assembly and test, a remarkably low figure. Eventually, capacity may be boosted to 40 units hourly, and it is anticipated that demand for the new V-8 engine will tax the capacity of the plant, necessitating two and probably three shifts if materials are available. There are 40 test stands and each engine is given a 45-minute test run, so the higher production figure can be accommodated as far as testing is concerned.

Several transfer-type machine tools entirely new in design and construction were purchased for use in the plant. One was described recently in STEEL (Aug. 23, p. 74), a 13-station unit for drilling, reaming and spot facing cast iron intake manifolds. An even larger installation is an 86-foot 18-station unit for milling, broaching and drilling the block. An electrical control panel with lights and pushbuttons keeps the operator informed of the functioning of each of the 18 stations, any deviations from specifications or faulty operations being signaled instantly. An estimated 5 miles of wiring is necessary for the control system. During its passage through the various machining units the block at one point is turned 180 degrees automatically, for milling the ends, while at another point it is somersaulted to permit machining the pan rails.

Similar equipment is used for machining of cylinder heads, bearing caps, exhaust manifolds, connecting rods and other basic components.

New Inspection Equipment—Novel types of highly accurate inspection equipment, including several varieties of air gaging, are used to keep close tab on the functioning of the automatic machining units. Thus, each cylinder bore is checked at four different points and stamped with the proper classification for selective assembly with a matching piston. Diameter, roundness, taper and bellmouth all are checked in a matter of seconds, and bores are classified into any one of eight permissible sizes.

Pistons are permanent mold aluminum castings, with skirts sharply relieved on either side below the pin bosses in the form of an inverted V. They carry invar struts and are tin plated before installation. Inspection of pistons is carried out automatically at a rate of 500 per hour, each piston being stamped in two places with the proper classification based on diameters of piston pin holes and skirt. At the same time a small red light indicates the proper slide conveyor nearby to which the operator transfers the checked pieces for later assembly.

More material is moved by conveyor than in any other single area in the entire Olds plant. There are 12,460 feet of conveyors, including power-driven overhead chain, gravity-feed roller, and underfloor chain conveyors. All conveyors above the floor are designed to deliver parts and subassemblies to the worker at a uniform height of 38 inches.

Final assembly line is 360 feet long and is of the flush floor type, permitting the assembler to walk around the assembly stand. The conveyor indexes a set distance at the end of each operation cycle; thus the engine is stationary while the operators at each station are completing their assigned tasks.

Chips Carried Under Floor—Chip conveyors, located under the floor, receive all chips and turnings from machines by gravity and remove them to a central collection point. Capacity of the system is 3½ tons per hour. The same conveyor serves a dirt collection system which clears dust and dirt from the plant air. About $750,000 was spent on the plant's air cleaning system alone, handling 164,000 cfm, providing an even flow of fresh air to all parts of the plant and at the same time carrying dust particles in the air away from the final assembly line. The collection system is mounted overhead on a line down the center of the plant.

Fluorescent lighting is used throughout the plant, while all machinery, equipment, interior columns and walls are painted a special flat green of a light shade calculated to minimize eye strain and fatigue. To eliminate heat and glare from the sun on the east side of the building, a special type of tinted glass was installed in window areas. Approximately 700 engines will be completed this month, and production gradually stepped up to a projected 5000 in November, or close to the rated single-shift capacity. This will permit a fairly good inventory of engines to be built up in advance of the first assemblies of 1949 Oldsmobile models in December.

Automobile Production

Passenger Cars and Trucks—U. S. and Canada

	1948	1947
January	422,336	366,205
February	399,471	393,663
March	519,154	443,588
April	462,323	445,137
May	359,996	404,191
June	454,401	421,466
July	489,736	399,456
August	476,594*	364,478
September		444,501
October		461,536
November		417,493
December		492,109
12 mos.		5,055,284

* Preliminary.

Estimates for week ended:

Sept. 4	101,879	83,444
Sept. 11	78,677	106,095
Sept. 18	93,119	109,734
Sept. 25	90,000	106,894

Estimates by Ward's Automotive Reports

GM Output High

AUGUST production of General Motors divisions was 195,029 units, exceeded this year by the March total of 209,597. Output was divided about 75-25 per cent between passenger cars and trucks.

What's Interesting About UNION CHAIN'S Selling?

Union Chains for Every Application

Drive and Conveying Chains and Sprockets

- Bridge Chain
- Combination Malleable Iron and Steel Chain
- HB (hardened bearing) type chain
- BP (bar and pin) type chain

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Finished Steel Roller Chains and Sprockets

- All manufacturer's standard, size ⅜ in. to 2½ in. pitch
- Single and Multiple Strands
- Extended Pitch Series in sizes 1¼ in. to 4 in. pitch

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Silent Chain and Sprockets

- All sizes ⅜ in. to 1½ in. pitch

★

Flexible Couplings

- Roller chain type
- Silent chain type

In each principal market there is a UNION Chain Sales Representative who has been trained to serve as a consultant on chain applications. Throughout each Sales Representative's Territory are selected distributors who try to inventory stocks of those chains and sprockets which are in steady demand. These Distributors make regular factory visits for instruction in recommending the proper chain for each task.

Because UNION manufactures a complete line of steel sprocket chains and **nothing else,** it is possible to offer you an exceptional field organization, qualified by training to assist you with your chain problems. Write for the name of the representative or distributor in your territory.

TRANSMIT POWER
UNION CHAINS
CONVEY MATERIALS

The Union Chain and Manufacturing Company San[illegible]usky, Ohio, U.S.A.

Large Scale Expansion

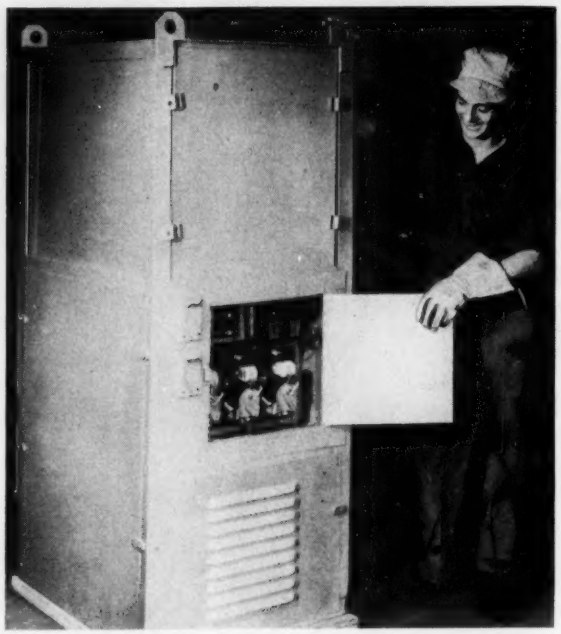
Program at cost of more than $23 million for first half of year expected to raise capacity

DURING the first six months of this year, Jones & Laughlin Steel Corp., Pittsburgh, has expended more than $23 million for buildings, machinery and other improvements. The sum expended is more than twice the net income of $11,491,901 for the period.

At the end of June the cost of complete authorized construction was estimated to be in excess of $52 million and according to Ben Moreell, president, this amount will be increased considerably with other contemplated improvements. Considerable property already has been purchased and more is under negotiation for major expansion of J & L's Pittsburgh Southside mills.

With a view to increasing steelmaking facilities, the company is in the midst of a blast furnace rehabilitation program which includes relining of some units and the enlarging of others. In connection with this program, the company blew out its No. 5 blast furnace at the Pittsburgh works last week. The 800-ton unit will be completely rebuilt from the bottom up. Capacity will be increased to about 1000 tons per heat by increasing the 20-foot hearth to 24 feet. The unit is expected to be down from two to three months.

PLEASANT WORK: Protection for crane operators against heat, dust and noxious gases is obtained with this small air conditioning unit designed by Dravo Corp., Pittsburgh. New model is about half the size of those used in cranes operating in extremely high temperatures, such as over steel mill soaking pits



Study Sites for Plant, Town

PRELIMINARY surveys of three British Columbia power sites for the proposed $300 million plant and town site have been completed by Aluminum Co. of Canada, Montreal. The most favored site at present is the Tahtsa, Whitesail and Eutsuk Lakes systems which will provide an estimated 1.5 million horsepower. These lakes are high in the mountains about 330 air miles due north of Vancouver, B. C.

International Engineering Co. Inc., San Francisco, is making the surveys and will give its report next March. A favorable decision on the project, awaits this report with particular regard to the matter of costs involved.

More Graphite Electrodes

INCREASING demand for graphite electrodes by electric arc-steel furnace users has made it necessary for the International Graphite & Electrode Corp., St. Marys, Pa., to expand its Niagara Falls, N. Y., plant. New facilities involving expenditure in excess of $500,000 and consisting of buildings, graphitizing furnaces and related equipment are nearing completion.

It is expected that the new units will go into operation about Oct. 1 and will increase the plants productive capacity between 15 and 20 per cent. Additional land adjoining the present plant site has been acquired in anticipation of future requirements.

Underground Operations

ABILITY to transfer operations underground in the event of an emergency is an unusual feature of the new plant of Smith & Wesson Inc., small arms manufacturer, Springfield, Mass. Although the external appearance of the plant is similar to many other modern industrial buildings, the difference is that it has a network of tunnels and vaults beneath the main structure.

A duplicate set of all plant service facilities underground guarantees full production of S & W guns even in the event of severe bomb damage to the surface structure. Tunnels are 15 feet wide and have walls of steel-reinforced concrete several feet thick. For the present the tunnels will be used for intraplant transportation to relieve congestion in production areas and the subterranean chambers will be used as storage space.

Promote Better Understanding

FORMATION of a new Council for Technological Advancement made up of 75 topflight industrial executives has been announced by Machinery & Allied Products Institute, Chicago. Basic purpose of the council is to create better understanding among American businessmen and the people generally of the part technological advancement must play in the future development and security of the country.

Among the erroneous conceptions which the council will seek to correct are: 1. That corporation profits are too high, 2. that too much of industry's income is being invested in plant and equipment, 3. that a larger proportion of the income of manufacturing corporations should be distributed in dividends, 4. that all loans for capital equipment should be curtailed and 5. that technology destroys more jobs than it creates.

New High for Freight Cars

FREIGHT car production during August reached a new high of 10,394 under the voluntary agreements program, according to the Office of Industry Cooperation and the Office of Defense Transportation. The average monthly output for the period June through August was 9863 cars, 137 cars short of the 10,000 cars per month goal of the government sponsored program.

Failure to meet the goal was due to a decrease in production during July caused by the inability of some steel producers to meet previous commitments because of loss of steel production resulting from work stoppages in coal mines earlier in the year. Some car builders were also short of items necessary to make up "car sets."

Briefs . . . .

Paragraph mentions of developments of interest and significance within the metalworking industry

Virginia Bridge Co., Roanoke, Va., has completed transfer of office operations to its new facilities at 700 North 39th Street, Birmingham. Practically all the company's manufacturing equipment has been housed in the new structure.

—o—

Tracy Mfg. Co., Pittsburgh, has named two midwestern distributors for its products and two eastern distributors for its line of steel kitchen cabinets and sinks. Appliance Distributors Inc., Omaha, Nebr., will serve as representatives for eastern Iowa and Nebraska and Midwest-Tinnerman Co., Davenport, Iowa, will handle the remainder of the state of Iowa and northeastern Illinois. R. U. Lynch Inc., Providence, R. I., will cover the territory consisting of Rhode Island, southeastern Massachusetts and eastern Connecticut. Eastern Massachusetts and southern New Hampshire will be the territory assigned to Northeastern Distributors Inc., Boston.

—o—

Triangle Equipment Co., Nutley, N. J., has purchased the Radiant Heat Division of C. M. Hall Lamp Co., Detroit, a move made necessary because of the latter company's expansion in the automotive lighting field. The sales organization of the Radiant Heat Division will be taken over by Triangle.

—o—

National Carbon Co., New York, has announced its intention to build a new graphite electrode plant. Construction will be started as soon as plans are completed and technical equipment is obtained.

—o—

Cleveland Tapping Machine Co., Cleveland, has appointed W. A. McLaren Export Corp. Ltd., Vancouver, B. C., as its sales representative for western Canada.

—o—

General Refractories Co., Brooklyn, Md., manufacturer of chrome and magnesite brick, is replacing one of its dryer buildings with a modern and much larger structure. In addition, the company's new laboratory, begun a year ago, is expected to be placed in use this month.

—o—

Cambridge Iron & Metal Co., Baltimore, is demolishing its present plant with a view to erecting a new structure on the same site. The new plant will be one story high and have approximately 5000 square feet of floor space.

—o—

American Rock Wool Co., Wabash, Ind., has started production at the former plant of Southern Detinning Co. in Birmingham. Company officials expect full production within a few weeks.

—o—

Dundalk Ornamental Iron Co., Baltimore, is equipping a small plant for fabrication and general machine shop work.

—o—

Carey Machinery & Supply Co., Baltimore, has acquired the former plant of Eastern Venetian Blind Co. The company will move into the building, containing approximately 42,000 square feet of floor space, about Nov. 1, following extensive remodeling of the property.

—o—

Koppers Co. Inc., Pittsburgh, has consolidated its two Baltimore plants into a single unit to be known as Metal Products Division. Plants involved were Piston Ring Division and Bartlett Hayward Division.

—o—

Laclede-Christy Co., St. Louis, has begun production of glass industry refractories at its Warm Springs, Calif., plant. The section just put into operation is part of a complete fire brick plant to be built on a 22-acre site.

—o—

Quaker Chemical Product Corp., Conshohocken, Pa., has recently let contracts for erection of approximately 20,000 square feet of additional plant space. Building is expected to be completed at the end of the year.

—o—

American Standards Association, New York, announces a standard for cast iron flanges and flanged fittings used in refrigeration equipment. The new standard was developed by a committee of national organizations, manufacturers and users of pipe flanges and fittings.

—o—

Inland Steel Co., Chicago, has licensed M. W. Kellogg Co., Jersey City, N. J., to produce stainless Ledloy steel which is made by introducing small amounts of lead into molten steel under a patented process owned by Inland. The latter company, which is a subsidiary of Pullman Co., has recently perfected a special process for the casting of stainless steels.

—o—

Hanchett Magna-Lock Corp., Big Rapids, Mich., has been organized and will manufacture magnetic chucks for use in machining and other operations.

—o—

Harr-Vinn Foundry Co., Baltimore, has changed its name to Harrin Co.

—o—

United Iron & Metal Co., Baltimore, has purchased the former plant of Maryland Car Wheel Co. in Curtis Bay. The building, containing approximately 85,000 square feet of floor space, will be utilized primarily for storage of surplus material, although a part of it will probably be used for metal reclaiming.

—o—

Detrex Corp., Detroit, has formed a Food Processing Equipment Division and named G. M. Howard as sales manager. The new division will manufacture and market cleaning equipment, chemicals and process machines for the food industries.

—o—

Aetna-Standard Engineering Co., Youngstown, has a program under way to eliminate its preferred stock. The company has bought over 7000 shares of 5 per cent preferred, leaving only 707 shares still outstanding. It paid for this stock with company cash and a $500,000 short term bank loan which is expected to be retired soon.

—o—

Signode Steel Strapping Co., Chicago, expects to get into production around Dec. 1, at the initial unit of a new plant under construction in Baltimore. Building will be 1-story high, 142 by 362 ft and will be used to produce steel strip for packaging heavy products.

—o—

Anchor Post Products Inc., Baltimore, has awarded a contract for erection of a one-story warehouse, containing 6400 square feet. Company now occupies a plant containing some 100,000 sq ft and has a branch plant containing 33,000 sq ft.

—o—

Dolphin Radiator & Fender Works, Baltimore, has acquired adjoining property of Frank G. Schenuit Rubber Co., containing about 12,000 sq ft. Company expects to use the property eventually for expansion.

The Business Trend

INDUSTRIAL activity in the week ended Sept. 18 regained much of the ground lost during the preceding week when Labor Day curtailed operations. In the recovery, STEEL's industrial production index climbed 9 points to a preliminary 167 per cent of the 1936-1939 average, although it did not get all the way up to the high level of production attained the week before the holiday.

Steel ingot output rose one point to 96 per cent of capacity, making seven consecutive weeks in which the steel production has been at least 94 per cent.

COAL—Latest report on bituminous coal shows production fell to 10,770,000 net tons during the week ended Sept. 11, reflecting holiday observance. Output has been running about 12 million tons a week.

AUTOMOBILES—Return to five-day operations resulted in production of 93,119 cars and trucks in the United States during the week ended Sept. 18. That is almost 15,000 units more than in the preceding week but less than the 104,072 units produced in the corresponding week last year. Continuation of the strike at the Detroit plant of the body builder supplying one of the Big Three put a crimp in the industry's output.

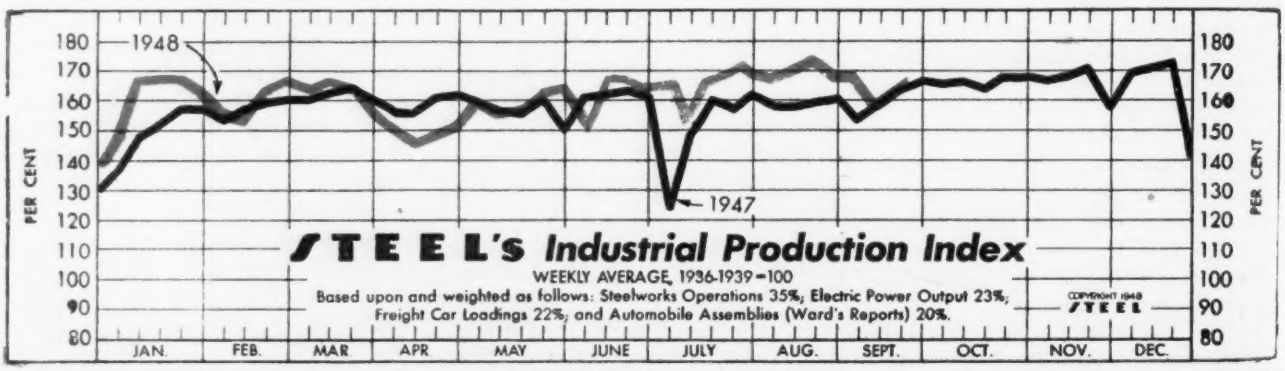
RAILROADS—All railroads and private carlines had 117,815 freight cars on order as of Sept. 1, according to Association of American Railroads. Of the total number, Class I railroads and railroad-owned and controlled private refrigerator car companies had 105,261 freight cars on order. Included in the orders are 25,205 box cars, 51,464 hopper cars, 17,999 gondolas and 4053 flat cars. Class I railroads also had 1626 locomotives on order as of Sept. 1, including 116 steam and 1510 diesel locomotives.

PRICES—Reversing the downward trend of the last two weeks, average primary market prices advanced 0.4 per cent during the week ended Sept. 11, according to Bureau of Labor Statistics. The Bureau's comprehensive index therefore advanced to 168.0 per cent of the 1926 average, from 167.4 per cent the preceding week.

TRUCKLOADINGS—Volume of freight transported by motor carriers in July was 2,765,313 tons, 6 per cent below the preceding month but 10.6 per cent higher than in July a year ago. Carriers of iron and steel hauled 134,300 tons in July, an increase of 2 per cent over June and 40.7 per cent over July, 1947.

BUSINESS INVENTORIES—Business inventories at the end of July totaled more than $51.7 billion, according to the Commerce Department. Manufacturers' inventories accounted for most of the $392 million increase over the preceding month as they advanced $374 million during the month.

CONSTRUCTION—Civil engineering construction volume for the week ended Sept. 16 rose 71 per cent over the preceding week for a total of $183.3 million. The total for the latest reported period is 102 per cent above the corresponding week a year ago and brings the cumulative total for the first 38 weeks of this year to more than $5 billion.



Index (chart above): Week ended Sept. 18 (preliminary) 167 Previous Week 158 Month Ago 172 Year Ago 164

BAROMETERS of BUSINESS

INDUSTRY	Latest Period*	Prior Week	Month Ago	Year Ago
Steel Ingot Output (per cent of capacity)†	96.0	95.0	95.0	87.5
Electric Power Distributed (million kilowatt hours)	5,426	5,166	5,391	4,977
Bituminous Coal Production (daily av.—1000 tons)	1,795	1,983	2,076	2,100
Petroleum Production (daily av.—1000 bbl.)	5,294	5,346	5,521	5,200
Construction Volume (ENR—Unit $1,000,000)	$183.3	$106.9	$117.1	$90.6
Automobile and truck output (Ward's—number units)	93,119	74,744	113,324	104,072

* Dates on request. † 1948 weekly capacity is 1,802,476 net tons. 1947 weekly capacity was 1,749,928 net tons.

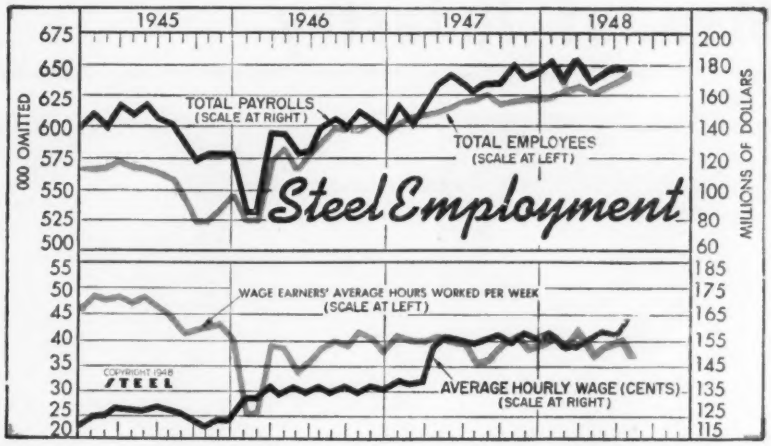
TRADE				
Freight Carloadings (unit—1000 cars)	890†	789	901	931
Business Failures (Dun & Bradstreet, number)	84	83	94	73
Money in Circulation (in millions of dollars)‡	$28,156	$28,287	$27,979	$28,633
Department Store Sales (changes from like wk. a yr. ago)‡	−2%	+16%	+14%	−1%

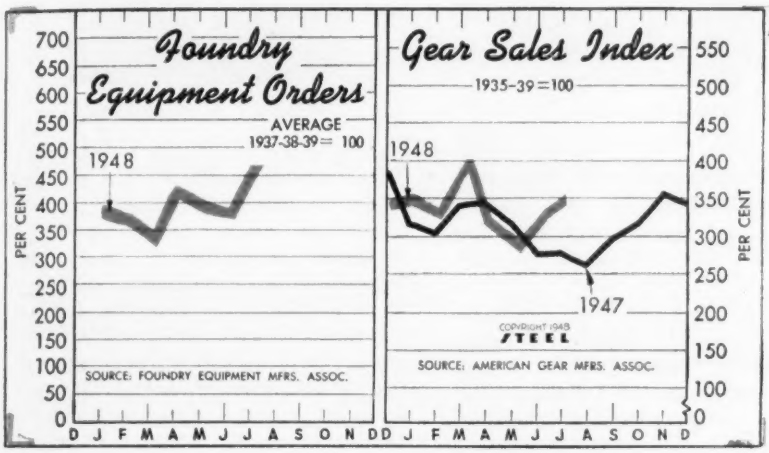
† Preliminary. ‡ Federal Reserve Board.

Steel Employment

	Employees† (000)		Total Payrolls (millions)		Hourly Wages† (cents)	
	1948	1947	1948	1947	1948	1947
Jan.	622	601	$180.2	$155.8	157.3	138.1
Feb.	626	607	167.6	139.5	155.1	137.0
Mar.	629	609	183.0	150.6	154.8	137.9
April	626	611	168.5	168.3	155.1	153.3
May	628	615	175.3	175.8	157.7	155.6
June	634	623	179.5	167.6	156.9	154.7
July	641	623	179.8	163.2	164.5	153.9
Aug.	....	625	....	169.1	....	155.6
Sept.	....	618	....	168.9	....	157.1
Oct.	....	620	....	180.1	....	154.6
Nov.	....	624	....	171.0	....	158.7
Dec.	....	621	....	175.3	....	156.5

† Monthly average.




Foundry Equipment Orders
AVERAGE 1937-38-39 = 100
1948
PER CENT
SOURCE: FOUNDRY EQUIPMENT MFRS. ASSOC.
Gear Sales Index
1935-39=100
1948
1947
PER CENT
COPYRIGHT 1948 STEEL
SOURCE: AMERICAN GEAR MFRS. ASSOC.
D J F M A M J J A S O N D D J F M A M J J A S O N D

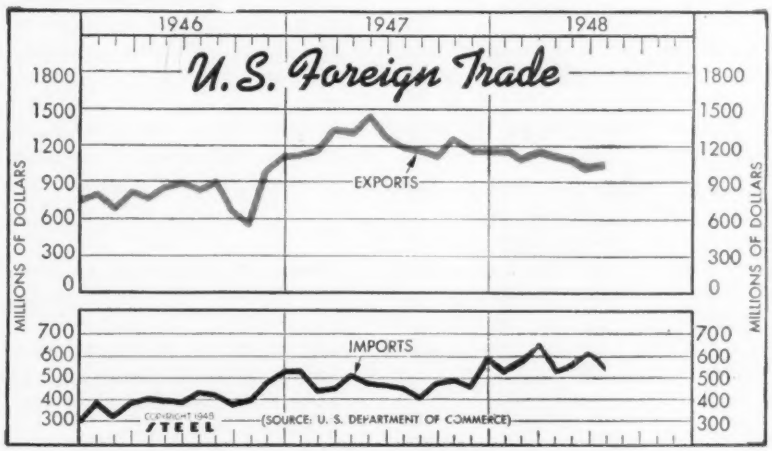
	Foundry Equipment Orders*	Gear Sales	
	Index (1937-38-39=100)	Index (1935-39=100)	
	1948	1948	1947
January	380.9	346.8	317.0
February	367.3	324.4	303.0
March	326.2	389.8	342.9
April	412.0	320.9	346.2
May	388.5	283.6	317.2
June	376.8	324.1	278.0
July	456.3	348.4	278.5
August	....	....	261.6
September	....	....	297.7
October	....	....	317.7
November	....	....	356.9
December	....	....	343.6

* By foundry trades only.

Foreign Trade

Bureau of Foreign and Domestic Commerce
(Unit Value—$1,000,000)

	Exports			Imports		
	1948	1947	1946	1948	1947	1946
Jan.	1,091	1,114	798	546	531	394
Feb.	1,086	1,146	670	582	437	318
Mar.	1,141	1,327	815	666	444	384
Apr.	1,123	1,299	757	527	512	406
May	1,103	1,503	851	549	474	393
June	1,013	1,320	878	616	463	382
July	1,022	1,265	826	559	450	431
Aug.	....	1,265	883	...	400	422
Sept.	....	1,109	643	...	481	377
Oct.	....	1,235	536	...	492	394
Nov.	....	1,138	986	...	455	478
Dec.	....	1,112	1,097	...	601	529



FINANCE

	Latest Period*	Prior Week	Month Ago	Year Ago
Bank Clearings (Dun & Bradstreet—millions)	$13,477	$9,753	$13,855	$13,807
Federal Gross Debt (billions)	$252.1	$252.7	$253.4	$259.0
Bond Volume, NYSE (millions)	$13.7	$12.6	$12.1	$17.7
Stocks Sales, NYSE (thousands)	3,352	3,962	3,076	4,180
Loans and Investments (billions)†	$63.3	$63.2	$63.0	$64.3
United States Gov't. Obligations Held (millions)†	$34,652	$34,714	$34,660	$38,699

† Member banks, Federal Reserve System.

PRICES

STEEL's composite finished steel price average	$93.86	$93.86	$93.55	$75.41
All Commodities†	168.0	167.4	169.0	157.4
Industrial Raw Materials†	180.9	180.7	182.5	171.9
Manufactured Products†	163.9	163.0	164.7	152.5

† Bureau of Labor Statistics Index, 1926=100.

Men of Industry

FORREST E. ALLEN

CHARLES A. KRAL

WILLIAM F. B. HENDERSON

Forrest E. Allen, formerly a member of the faculty of Iowa State College in the department of mechanical engineering, and associate professor in charge of the instruction on metallurgy, has joined the Development & Research Division, International Nickel Co. Inc., New York. He will make his headquarters at New York, and will work on the company's educational program with universities and colleges in the United States.

—o—

John H. Batten has been elected president, Twin Disc Clutch Co., Racine, Wis., succeeding his father, **P. H. Batten,** who is chairman of the board.

—o—

Edmund J. Hogan has been appointed general sales manager, West Coast Division, Willys-Overland Motors Corp. He has had former association with the Chevrolet Division of General Motors Corp., and prior to service in World War II, was a Buick dealer in Cincinnati.

—o—

Kenneth M. Smith, until recently president of Lancaster Malleable & Steel Corp., Lancaster, N. Y., has joined National Malleable & Steel Castings Co., Cleveland, as assistant to **Wilson H. Moriarty,** vice president in charge of sales. Mr. Smith headed the Lancaster company since 1938, and had previously been managing director, Horace E. Dodge Boat & Plane Corp., Detroit.

—o—

G. A. Watson has been appointed manager of sales for the Chicago Division of Electro Metallurgical Sales Corp. He succeeds **J. H. Spillane,** who has been transferred to the general sales office in New York. Mr. Watson had previously served in various sales and service capacities in both the Chicago and Detroit offices of the company, which is a unit of Union Carbide & Carbon Corp.

—o—

Charles A. Kral has been appointed assistant general manager of operations, Newport Rolling Mills, a division of International Detrola Corp., Detroit, effective Oct. 4. Newport Rolling Mills is going through a period of modernization and expansion. For the past 11 years, Mr. Kral has been assistant general superintendent at Tin Mill Division, Aliquippa, Pa., Works of Jones & Laughlin Steel Corp., and prior to his association with that corporation, was assistant general manager of Wheeling Steel Corp., Steubenville, O.

—o—

Leonard S. Florsheim has been elected chairman of the board of directors, Independent Pneumatic Tool Co., Aurora, Ill. **W. A. Nugent** was elected executive vice president, and **Dr. Walter G. McGuire,** chairman of the executive committee.

—o—

John E. Brennan Jr. has been appointed manager of the new time and job standards department, Stamford Division, Yale & Towne Mfg. Co., New York. He formerly was connected with Smith, Brennan & Co., consulting industrial engineers of Boston.

—o—

Otis L. Waller, associated with Buick Motor Division, Flint, Mich., since 1914 and assistant general sales manager in Chicago since 1934, becomes general sales manager Nov. 1, succeeding **W. F. Hufstader,** who at that time becomes a vice president of General Motors Corp. in charge of distribution. **Kenneth H. Hendershott,** a veteran of more than 40 years with Buick, has been appointed divisional comptroller, succeeding **Ivan L. Wiles,** new general manager of the division. **Irving H. Larkin,** active with Buick for 34 years, is the new general superintendent, succeeding the late **Fred W. Letts.** Two new assistant general sales managers for Buick are **A. H. Belfie,** director of merchandising since 1938, who will be located at Flint, and **J. B. Nash,** since 1941 Pacific Coast regional sales manager, who will have headquarters at Chicago, succeeding Mr. Waller.

—o—

William F. B. Henderson will be elected executive vice president and a director of E. W. Bliss Co., Detroit, manufacturer of mechanical and hydraulic presses, rolling mills, and can and container machinery. He formerly was general manager, Briggs Mfg. Co.'s Plumbing Division, and for the past four years, executive vice president and director, Clearing Machine Corp., Chicago. After World War I, Mr. Henderson had been associated with Maxwell Motors and Budd Co. at Detroit.

—o—

E. B. White has been appointed a representative of Plasteel Products Co., Washington, Pa., to cover the Kansas City, Mo., and adjacent territory. He has been with Eutectic Welding Alloys Co., where he served as Mid-West sales manager.

—o—

Heil Process Equipment Corp., Cleveland, announces the appointment of **Ira S. Latimer** as its sales agent in eastern Michigan. For 12 years, Mr. Latimer was associated with Rotary

This prescription raised production 50%

Vitamin "C"?—Carboloy Cemented Carbide, of course.

It was a Carboloy engineer who turned the trick. Here's the story:

On installing a new boring machine recently, a small plant in Pennsylvania was sadly disappointed to get no better production from it than they had from the old one. So they called in a Carboloy engineer.

Now? Thanks to his suggestions, the new machine is turning out half again as many pieces—twelve cast-iron wheels an hour instead of the previous eight.

Why was he able to help them? Here's the reason: Carboloy engineers spend most of their time working with Carboloy Cemented Carbides. They've come up against almost every type of carbide problem you can imagine, in their time. They're experts—specialists in carbides.

Try this prescription yourself!

You, too, can back up the intimate knowledge of your own production men with this specialized "know-how" of Carboloy engineers. They can bring to your plant a broad experience in obtaining maximum results with carbides.

Slight changes in tool design, speeds or feeds, grinding, or tool handling often effect far reaching economies and increases in out-put.

Together, your engineers and our Carboloy specialists can form a team nothing can stop. Together they can use carbides to cure many of your production ills.

Ask for your Carboloy engineer

Your Carboloy engineer will be glad to help you with your carbide problems; or in the selection of the most economical tooling from any of Carboloy's 600 standard tools and blanks, or special Carboloy-tipped tools made by more than 150 tool manufacturers.

Why not call your Carboloy engineer? Or write us direct: Carboloy Company, Inc., 11141 E. 8 Mile Blvd., Detroit 32, Michigan.

AUTHORIZED CARBOLOY CEMENTED CARBIDES DISTRIBUTORS

Standards stocked by authorized distributors in 82 cities coast to coast.

CARBOLOY®
CEMENTED CARBIDE

Electric Steel Co., Detroit, as metallurgical engineer, sales metallurgist, and Chicago manager. He will now have headquarters at Detroit.

—o—

In line with the provisions of the Townsend Co. retirement plan, **H. C. Weidner** has resigned as president of the company and has been elected chairman of the board of directors. He is succeeded as president by **Frederick R. Dickenson,** who, since joining the company in 1947, has served as executive vice president. He previously had been associated for 22 years with American Blower Corp., Detroit, in the capacity of sales executive, industrial relations executive, and works manager. Mr. Weidner joined Townsend Co. in New Brighton, Pa., in 1913, holding various executive positions before assuming the presidency in 1928. **Joseph S. Thompson,** assistant to the executive vice president, has been appointed general sales manager of the company.

—o—

Charles B. Cleevely has been appointed assistant superintendent of maintenance, Campbell Works, Youngstown Sheet & Tube Co., Youngstown, succeeding **August C. Jacob,** retired.

—o—

J. C. Kuhn has been appointed general sales manager, Morse Twist Drill & Machine Co., New Bedford, Mass. He succeeds **Mort Rainey,** who has resigned as vice president and sales manager to pursue other interests. Mr. Kuhn has been eastern district sales manager for Blackhawk Mfg. Co., Milwaukee, and prior to that, was with Van Norman Co., Springfield, Mass., for many years.

—o—

Jones & Laughlin Steel Corp., Pittsburgh, announces the following appointments: **J. Russell Powell,** named superintendent, tin plate department, effective Oct. 1, succeeding **C. A. Kral; J. R. Davey,** general foreman, finishing, has been appointed to succeed Mr. Powell as assistant superintendent, tin plate department; and **Cecil T. Snyder,** general foreman, cold-rolled sheet, succeeds Mr. Davey as general foreman, finishing.

—o—

Announcement is made of the appointment of **Jack R. Gregson** as district sales manager, bucket department, Wellman Engineering Co., Cleveland, in charge of the eastern territory, with offices in New York. Mr. Gregson formerly was sales engineer for Lima Shovel & Crane Division, Lima Locomotive Works, in the eastern territory, and assistant director of foreign operations of Lima Shovel & Crane Division, Lima-Hamilton Corp.

—o—

Geo. P. Reintjes Co., Kansas City, Mo., manufacturer of suspended walls and arches, announces the appointment of **C. R. Fischer** as its sales representative for the eastern half of Pennsylvania and New Jersey. Mr. Fischer has been associated with Fenno-Fischer Co., as manufacturers' representative in this area.

—o—

A. L. Carr has been appointed sales manager, Morse Twist Drill & Machine Co., New Bedford, Mass. Formerly assistant sales manager, he has been with the Morse organization for 32 years.

—o—

Carl F. Schultz, formerly with the central engineering staff of Ford Motor Co., has been appointed engineering assistant to **T. W. Skinner,** general manager, Lincoln-Mercury Division of Ford in Detroit. Mr. Schultz joined the Ford Engineering Division in October, 1946, after a number of years of association with Oldsmobile.

—o—

George Innes has been appointed works manager, Barnett Foundry & Machine Co., Irvington, N. J. He joined the company in 1945, and was previously associated with Worthington Pump & Machinery Corp., Harrison, N. J.

—o—

George M. Ullom has been appointed district sales manager at Portsmouth, O., for Harbison-Walker Refractories Co., Pittsburgh. He formerly was connected with the St. Louis sales office, with headquarters in Kansas City, Mo.

—o—

Howard C. Tuttle, associated with STEEL magazine in the Cleveland office since October, 1945, as assistant editor, news and market staff, has been appointed Chicago news and market editor, succeeding **Erle F. Ross,** named engineering editor in the Chicago area. **Edwin L. Karpick,** who joined STEEL's engineering staff in February following graduation from Purdue University, has become a member of the news and market staff at Cleveland.

—o—

Rockwell Mfg. Co., Pittsburgh, announces the appointment of **L. A. Dixon** to the vice presidency of the company's Meter & Valve Divisions. He was associated with Wisconsin Axle Co. and started at Pittsburgh Equitable Meter Co., now a division of Rockwell Mfg. Co., in 1926 as assistant to the president. He later became president of Pittsburgh DuBois Co., manufacturer and distributor of gas meters. When that company was acquired by Rockwell, he continued to serve in the same capacity until recently, when he relinquished that position to accept the new assignment.

—o—

Acme Pattern & Machine Co., Buffalo, has appointed two new vice presidents and an assistant to the

J. C. KUHN

CARL F. SCHULTZ

L. A. DIXON

president as part of a long-range expansion program. **William A. Carlson,** former works manager for the Racine, Wis., Tool & Machinery Co., has been appointed vice president in charge of manufacturing. **Robert E. Coleman,** former sales manager, Pivot Punch & Die Corp., North Tonawanda, N. Y., has been appointed vice president of sales. **Nelson M. Hopkins,** formerly sales manager, Kane & Roach Inc., Syracuse, N. Y., has been named assistant to **Otto W. Winter,** president.

—o—

J. F. Ginna has been appointed assistant to the vice president in charge of production, American Car & Foundry Co., New York. He has served with the company for over 30 years.

—o—

Penn Metal Co. Inc. announces appointment of **Dallas S. Casley** as chief engineer of the company's plant at Parkersburg, W. Va. He will assist **George A. Stevenson,** vice president in charge of operations, in the company's construction program and improvements to machinery and equipment. Mr. Casley joins Penn Metal Co. after being associated with the engineering department of Ames Baldwin Wyoming Co., Parkersburg.

—o—

William J. Flessner has been appointed sales manager, Blue Island Division, Acme Metal Products Corp., Blue Island, Ill.

—o—

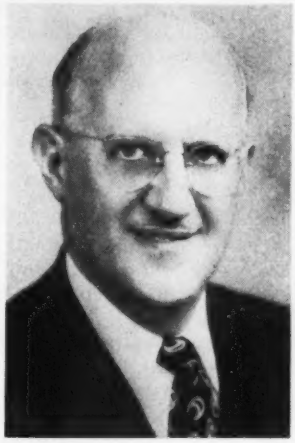
William F. Coleman has been elected vice president of sales for Amgears Inc., gear manufacturer of Chicago, and a subsidiary of Hupp Corp.

—o—

David A. Thomas, former vice president and general manager, Bagley & Sewall Co., Watertown, N. Y., has been appointed executive vice president and general manager of American Insulator Corp., York, Pa.

—o—

John R. Marvin has been appointed



EDWIN J. HEIMER

eastern representative for Sterling Mfg. Co., Cleveland. His territory will include all of eastern Pennsylvania, including Altoona and southern New Jersey. Mr. Marvin, of John R. Marvin & Co., Philadelphia, will handle Sterling's line of ammeters, voltmeters, millimeters, hearing aid testers, battery cell testers, and special and standard type instruments.

—o—

Edwin J. Heimer, former president, Barrett-Cravens Co., Chicago, has joined Clapp & Poliak Inc., New York, exposition management, as vice president in charge of its newly opened San Francisco office.

—o—

Alexander Zekany, formerly associated with National Tube Co., U. S. Steel Corp. subsidiary, has been appointed sales metallurgist of American Cladmetals Co., Carnegie, Pa. He will have direct charge of co-operative efforts with manufacturers in the development of applications of Rosslyn metal, a cladmetal produced by American Cladmetals.

—o—

David J. Joseph Co., Cincinnati, announces that **Julius Goldstein,** formerly associated with Irvin Metals Co., New York, will have charge of its nonferrous operations, with headquarters in Cincinnati, and that **Irvin M. Bettman,** formerly associated with First National Bank of Cincinnati as trust officer, will be in charge of its finance.

—o—

Guy I. Swift has been appointed assistant steel fabrication and assembly factory manager at Caterpillar Tractor Co., Peoria, Ill. **Hubert Boggs** has been promoted to superintendent, and **Maurice Foote** to Mr. Bogg's position as general foreman of erection.

—o—

George D. Conlee has resigned as chief engineer of the Conlon Division, Conlon-Moore Corp., Chicago.

—o—

Merit Products Inc., Los Angeles, maker of Sand-O-Flex sanding wheels and abrasive cartridges, announces appointment of **F. W. Anderson** as sole sales representative for the Illinois and Wisconsin territory, with offices in Chicago and Racine, Wis.

—o—

Everett G. McGill has been appointed manager of the organization and analysis department, Packard Motor Car Co., Detroit.

—o—

Fred Falberg, associated with GMC Truck & Coach Division, General Motors Corp., Pontiac, Mich., continuously since 1925, and for the last three years superintendent, Sheet Metal Division, has been appointed factory manager succeeding **Rodger J. Emmert,** who has been transferred to the central office of General Motors.

—o—

Appointment of **Richard E. Hoagland** as manager of By-Products Sales has been announced by Kaiser Co. Inc., operator of the Fontana, Calif., steel plant. In this capacity, Mr. Hoagland will assume direct sale of all by-products formerly sold through W. E. Major Industries, Los Angeles. His office is located in Los Angeles.

OBITUARIES . . .

F. S. Rutherford, 67, Washington representative of Republic Steel Co., Cleveland, since 1932, died in Washington Sept. 13. Prior to his Washington appointment, Mr. Rutherford served as executive assistant to the president for several years. Previously he had represented the Youngstown Sheet & Tube Co. in cities throughout the Middle West.

—o—

Henry J. Litsey, 57, general superintendent since 1943 of Ambridge, Pa., plant, Spang-Chalfant Division National Supply Co., died Sept. 16. He had been employed at the plant for 31 years.

—o—

Evander J. Barrows, for the last eight years a member of the engineering staff, American Steel & Wire Co., Cleveland, died Sept. 18.

—o—

Edward Hayes, 59, treasurer and director, Turbine Equipment Co., New York, died Sept. 17 of a heart attack at his summer home in Monmouth Beach, N. J.

—o—

Gordon T. Williams, materials engineer for Pratt & Whitney Division, United Aircraft Corp., at Hartford, Conn., died Sept. 19. Mr. Williams had previously been head of the laboratory staff, Thompson Products Inc., Cleveland.

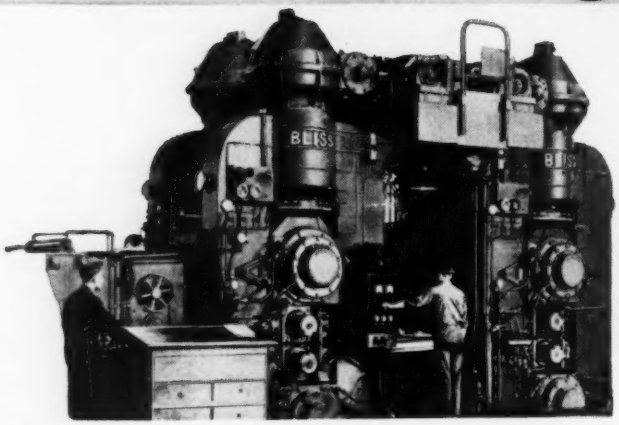
—o—

Grant Broomal, 81, former director of the service engineering department, Armco Steel Corp., Middletown, O., died in Cincinnati Sept. 12. He was a leader in Armco research prior to retirement in 1931.

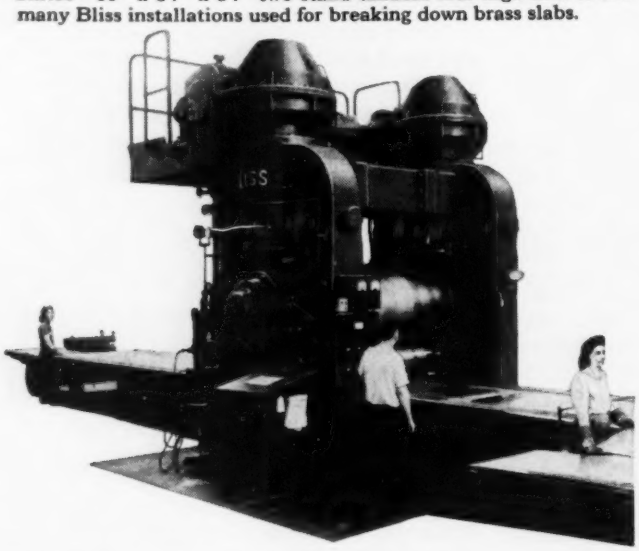
—o—

Earl S. Detienne, 55, president of J. R. Petley Co., Milwaukee, industrial equipment dealers, died Sept. 16.

In Rolling Mills, too,



BRASS—16" x 34" x 34" two stand tandem four-high mill is one of many Bliss installations used for breaking down brass slabs.

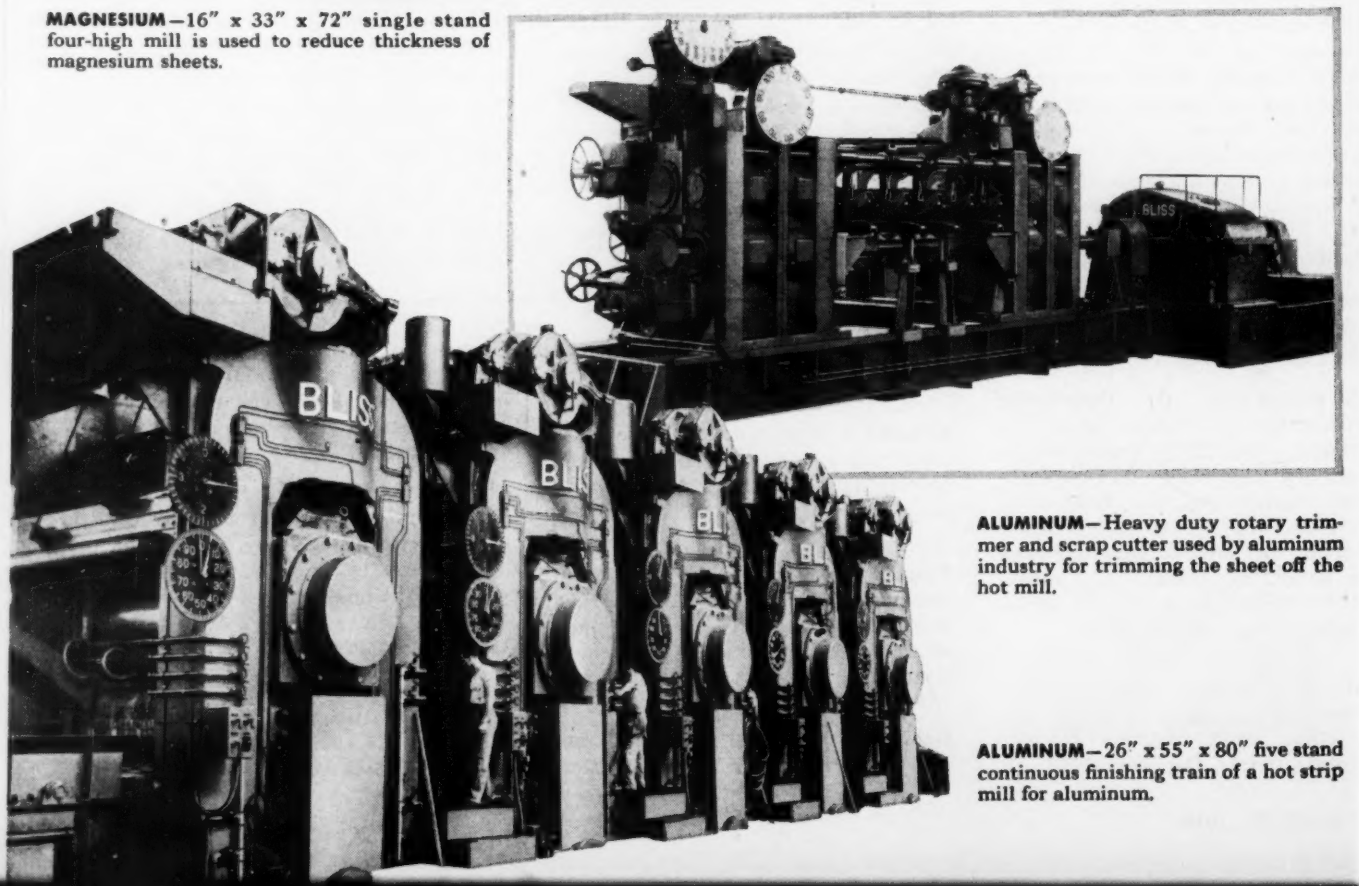


MAGNESIUM—16" x 33" x 72" single stand four-high mill is used to reduce thickness of magnesium sheets.

Hundreds of outstanding Bliss sheet and strip mill installations—here and abroad—give daily evidence of the close cooperation between customer and builder which alone can create a mill exactly suited to the job at hand.

Whether your requirements concern 2-, 3-, 4-high or cluster mills; hot or cold-rolling of ferrous or non-ferrous metals, Bliss can supply the equipment especially designed to suit *your* needs. Bliss also builds an extensive variety of accessories: mandrel type hot mill coilers, up-coilers, slitters, etc. Some of this equipment are illustrated on these pages.

Put your rolling mill problem up to Bliss. You'll find the same keen engineering counsel and service which have made Bliss the first name in presses for more than 90 years.



ALUMINUM—Heavy duty rotary trimmer and scrap cutter used by aluminum industry for trimming the sheet off the hot mill.

ALUMINUM—26" x 55" x 80" five stand continuous finishing train of a hot strip mill for aluminum.

Engineering News . . . AT A GLANCE

"FROSTY" PRODUCTION— Increases in industrial productivity of as much as 300 per cent per operation have been obtained by new developments in industrial refrigeration, it was reported recently by Frigidaire Division, General Motors Corp., Dayton, O. Among important uses cited in the study made by the concern were included cooling of metal parts for shrink fits, constant mechanical cooling for more accuracy in machine cutting operations, cooling welding tips, low temperature testing for mechanical products, air-conditioning for machining aluminum castings, cooling cabinets for aluminum rivets and constant temperature rooms for maximum size control in metalworking and grinding rooms.

PREVENTS DIE WELDS— New economical die-casting alloy, consisting of copper, silicon and aluminum, which overcomes former problems of drilling, tapping and machining castings created by other alloys was revealed recently by Federated Metals Division, American Smelting & Refining Co. The company reports that besides offering ease of casting equal to former alloys, the new development provides less tendency for castings to weld to the die during the casting process. In physical properties, it has appreciably higher tensile and yield strength and higher hardness. Final cost of castings is said to be lower because the alloy is generally cheaper than the primary 12 per cent silicon alloys.

LOWER COST PROCESS— An anodizing process suitable for magnesuim alloy is used by Consolidated Vultee Aircraft Corp., Fort Worth, Texas, in treating B-36 parts. This is reported to give a finish harder than that obtained with former treatments and of higher electrical resistance. It also resists corrosion better after being covered with a thin coat of zinc chromate primer. Process is said to be used in preference to a chemical treatment both because of the better protection afforded and because it is believed to be cheaper in operation.

PLASTIC TECHNIQUE FOR IRON CORES— Techniques developed for pressure molding of plastics are used by the Germans in manufacturing high frequency iron cores for electronic equipment, a report prepared for the Office of Technical Services by Franze R. Hensel, vice president, P. R. Mallory Co. Inc., Indianapolis, reveals. Split molds with a life of 200,000 extrusions are used in specially designed preses. Frequently in one split die as many as 8 to 12 cores are extruded in one stroke. Method is said to permit production of complicated cores and is used extensively for making cores for radio receivers and transmitters. The presses operate with a total pressure of 10 tons.

FACILITATES COIL-BENDS— When using the filled-tube method in coil-building for induction heating the inner surface of the annealed copper tubing is first coated with a light lubricating oil, after which it is placed in a pan of warm water and brought up to a temperature of 180° F or higher. Tube is then filled with a molten low-temperature alloy which is afterwards solidified by quenching in cold water. Procedure, according to Ben Griffith Jr., and Ray Skiba of the electronics section of Allis-Chalmers, enables the worker to bend the tubing into any configuration without danger of collapsing. The alloy can be melted out by again placing the coil in hot water. Rectangular tubing, it is pointed out, should invariably be formed by this method.

REVERSE ACTION—In the "flow-production" setup employed by Federal Machine & Welder to process its presses, material moving through the plant makes a large one-way, U-circuit, in spite of the fact the plant is concerned only with job-type operations. Although each press traversing the production line may be a "special" of one sort or another, raw materials for each of them are processed progressively through their fabrication, machining and heat treatment sequence—ending up in an assembly aisle. (p. 84.)

SCIENTIFIC APPROACH NEEDED—Heat treating of metals has made such rapid strides in the past several decades—changing from an uncertain art to an exact science—that today up-to-date forging plants require the services of a competent plant metallurgist to supervise and direct various types of heating techniques. Well equipped heat-treating facilities of a forging shop are as far advanced as the modern motor car. It has been necessary for the modern forge plant to change its metal heating department from a simple annealing operation to one with facilities capable of imparting hardness, toughness, resistance to shock, impact, wear, abrasion and fatigue. (p. 89.)

EXPANDED APPLICATIONS — Widespread use in recent years of cemented carbides for tool tips, running only from a few grams in weight for the average tip to some 4 ounces for a "larger" tip, had a tendency for industry to regard the hard metal carbides as usable primarily in small sections or pieces. New manufacturing techniques and modified metal mixtures—developed as a result of wartime production—are currently counteracting this tendency. Today, cemented carbide die nibs ranging up to 13½ inches inside diameter and weighing 105 pounds are being used for drawing, forming, etc., in addition to other important nontool and nondie uses. (p. 103.)

CLOSELY CONTROLLED QUALITY—Basic refractory brick, made in two types by Harbison-Walker's new plant at Baltimore, uses highly mechanized handling and processing methods in its production. Careful sizing, separation of basic materials and segregation of flow lines contribute to product quality. (p. 110)

'Flow-Production' Processing

. . . minimizes movement of huge press components

By DAN REEBEL
Associate Editor, STEEL
Photographs by author

UTILIZATION of modern efficient plant layout designed for straight "flow production" of huge press components, together with modern equipment is enabling Federal Machine & Welder Co., Warren, O., to produce in quantity its large presses incorporating all-welded frames. Here, job-shop type operations are performed in a straight-line production sequence.

The layout minimizes amount of intra-plant materials-handling required to move the many weldments and machined components used for assembly of the large presses here produced.

Mild steel plates and other raw material enters at one end of the plant and moves progressively through each step of its fabrication, machining and heat treatment in sequence, eliminating backtracking of material while in process of manufacture. In moving through the plant, the material makes a large U-circuit, finished components ending up in an assembly aisle adjacent and parallel to the receiving and storage area, both of which have ready access to truck transportation docks and railroad sidings.

Formerly the Warren City Mfg. Co.'s property which produced diesel engine blocks and landing craft for the U. S. Navy during the recent war, the plant is equipped with the most up-to-date tools. Its 290,000 square feet of floor space is ideally suited for fabricating large presses and other types of heavy equipment. The first unit was shipped in late August, 1946, and by December of the same year, output was geared to the point where $800,000 worth of presses had been produced and delivered.

Accompanying photographs show some of the massive machining and welding necessary to produce the large heavy-duty presses assembled here.

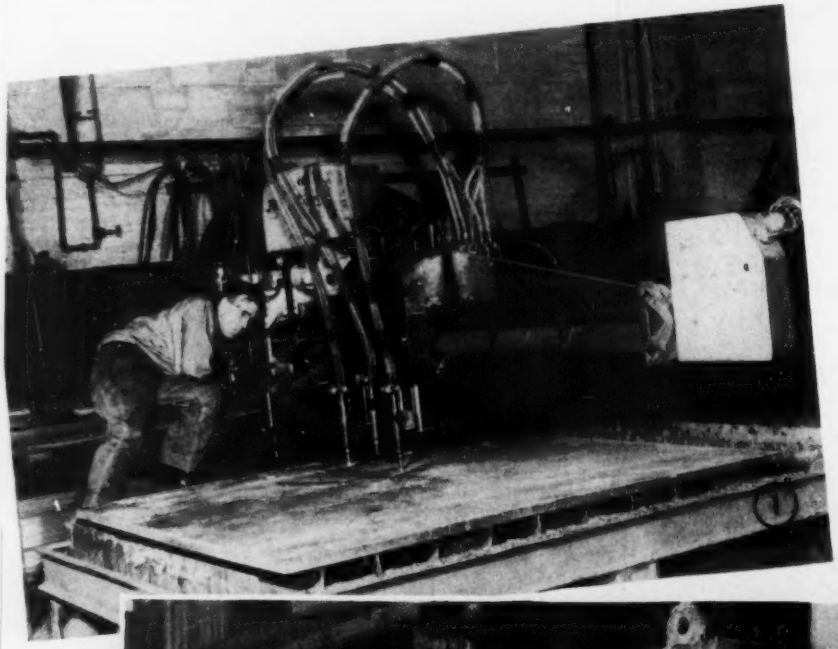
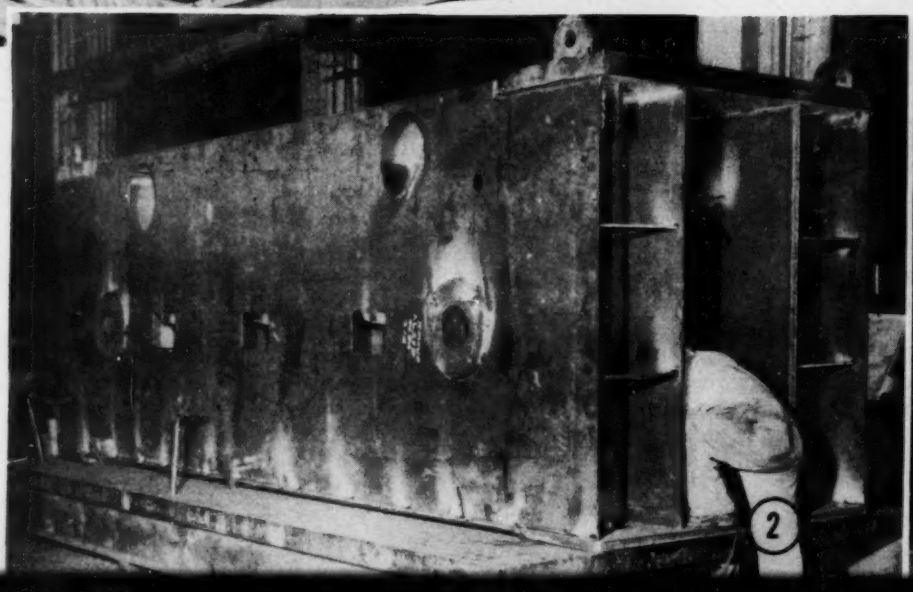


Fig. 1—Flame cutting component parts for 100-ton welded steel press on a National Pantograph flame cutting machine. Volume production is guaranteed by a battery of ten such units working in connection with other equipment

Fig. 2—Tack welding parts on crown of a 600-ton, welded steel, two-point, eccentric gear press with a bolster area of 64 x 180 inches. This department, utilizing eight fit-up tables plus some smaller tables, maintains a steady flow of fabricated weldments

Fig. 3—Arc welding bed of 1800-ton, welded steel, double action, eccentric gear press. Whenever possible, weldments are produced on a bank of 30 various size welding positioners, largest being of 20,000-pound capacity. Weldment here weighs about 35,800 pounds



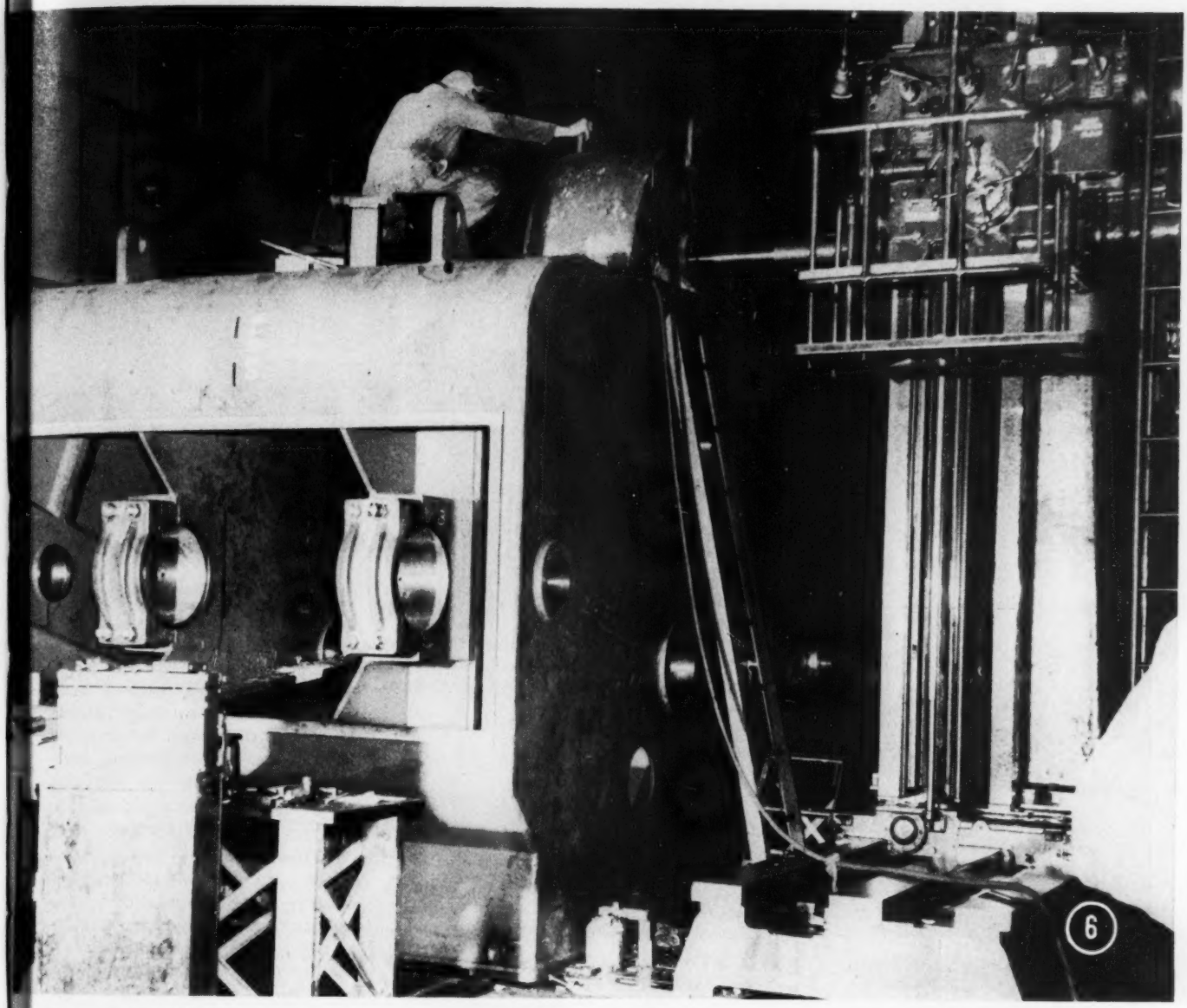
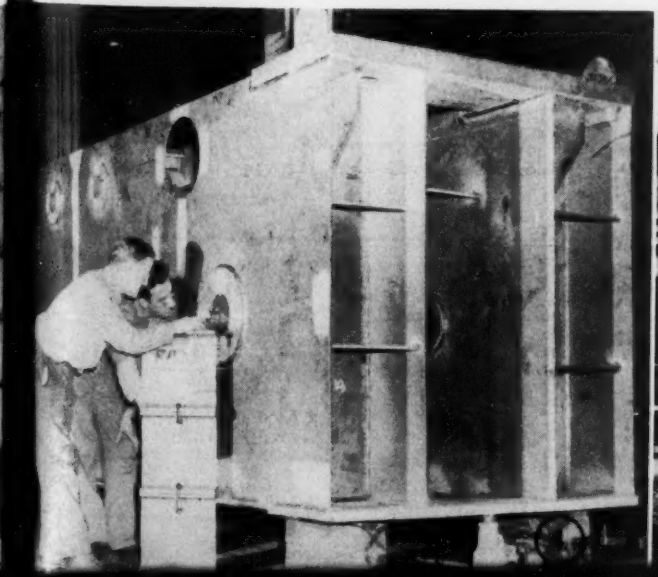
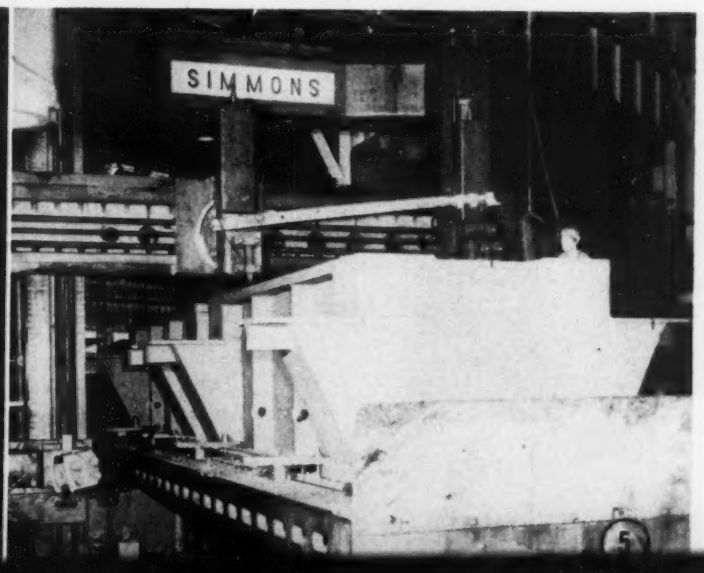


Fig. 4—Dimensional inspection of a crown for a 600-ton welded steel, eccentric gear press to insure proper alignment of components before final fit-up. The unit below, when completed, will be approximately 20 feet high and weigh close to 243,000 pounds

Fig. 5—Gang planing bed with a bolster area of 60 x 96 inches for 250-ton capacity, welded-steel, double-geared, twin-drive, eccentric gear presses on a Simmons 10 x 34-foot travelling table type bed planer. Machine shop is equipped with twenty planers with bed sizes ranging from 3 x 12 to 11 x 36 feet

Fig. 6—Boring gear box on a 1800-ton G & L eccentric table mill. Tolerance of bores is held to 0.001-in. This completed press will have a bolster area of 96 x 132 inches and, when completed, will weigh about 550,000 pounds. This section of the machine shop is equipped with four G & L eccentric table mills in addition to other horizontal spindle mills





Flow-Production Processing

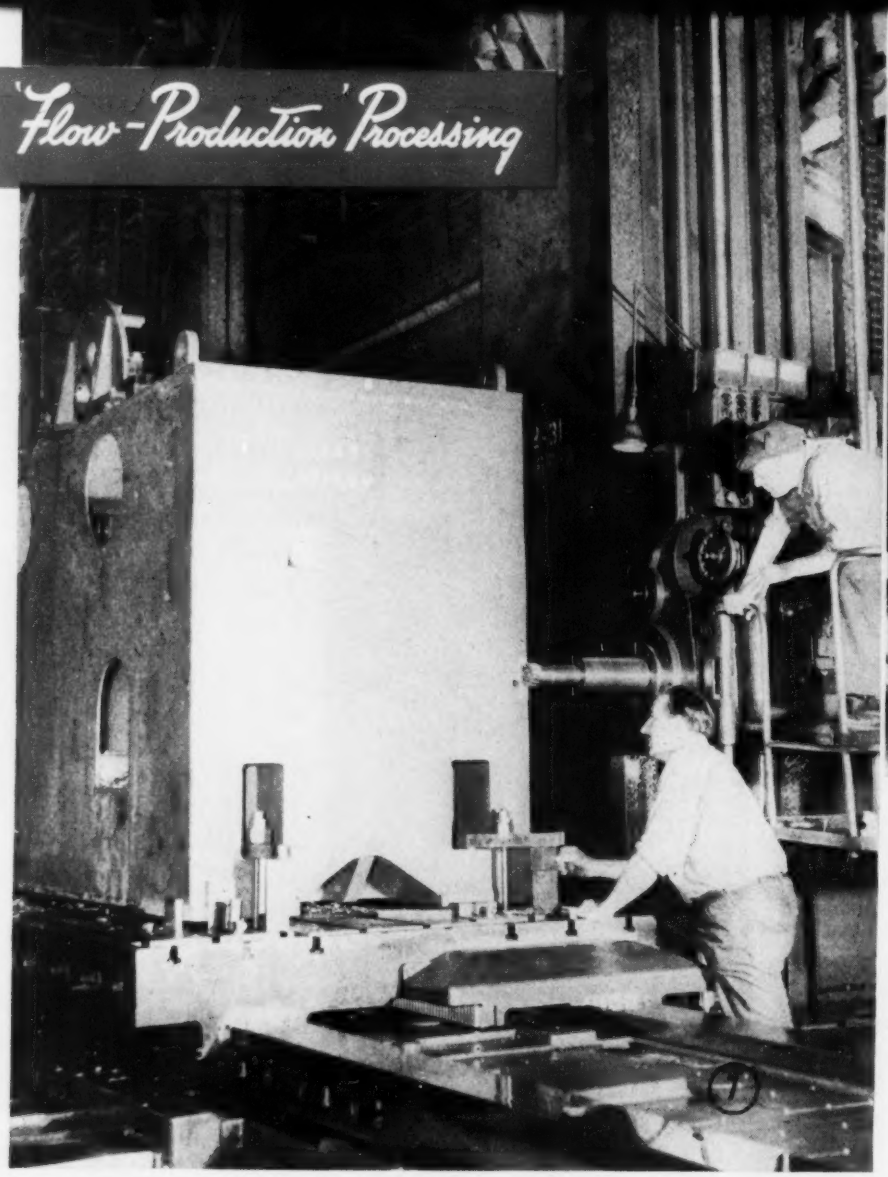


Fig. 7—Spot facing crown of a 300-ton capacity, welded steel, tie rod, eccentric gear press. This operation facilitates accurate alignment of the bores. Press will have a bolster area of 68 x 84 inches and will be approximately 230 inches high

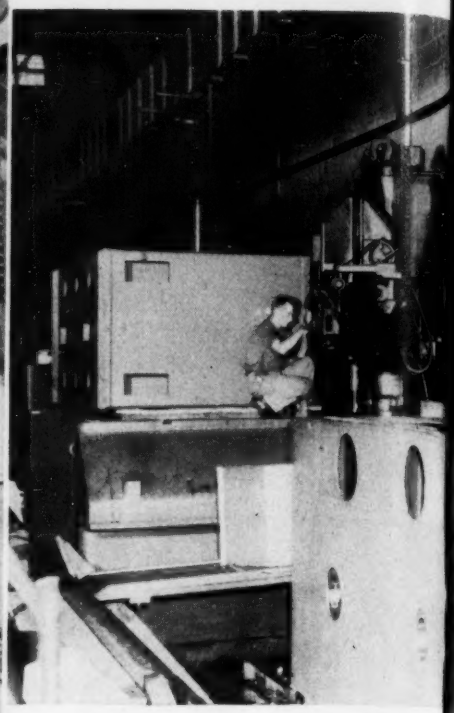
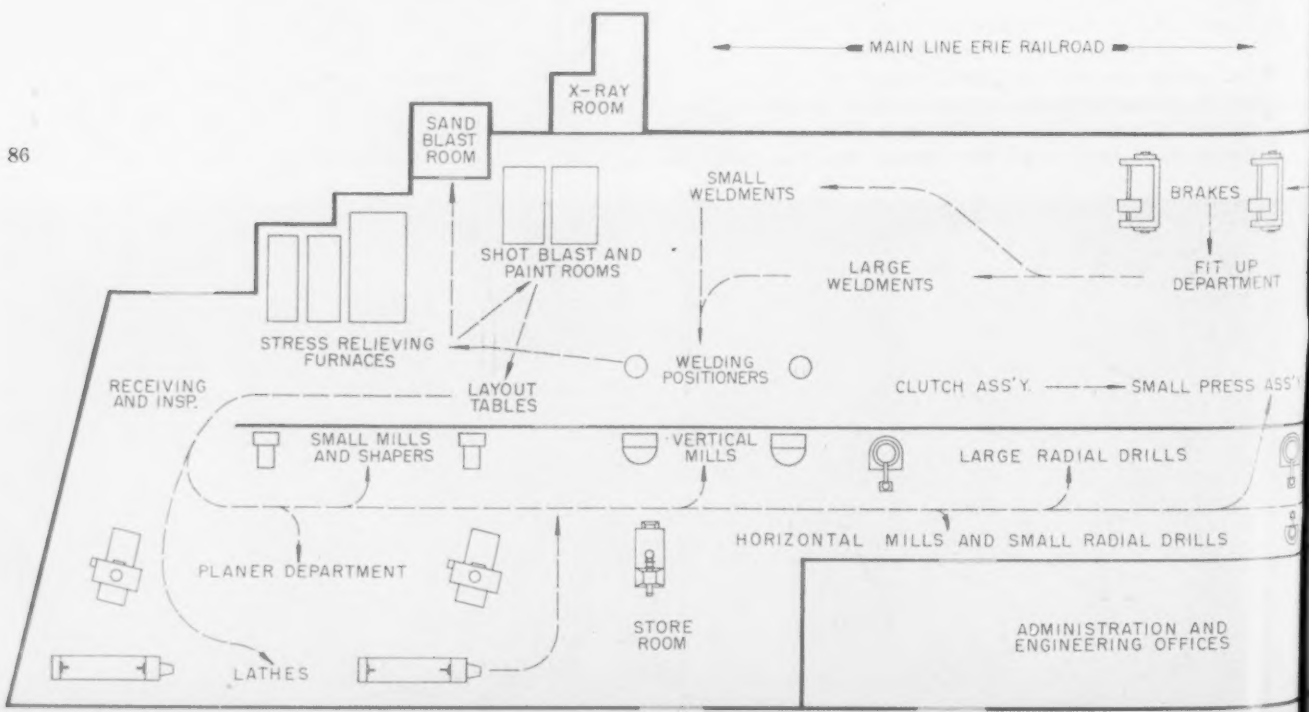
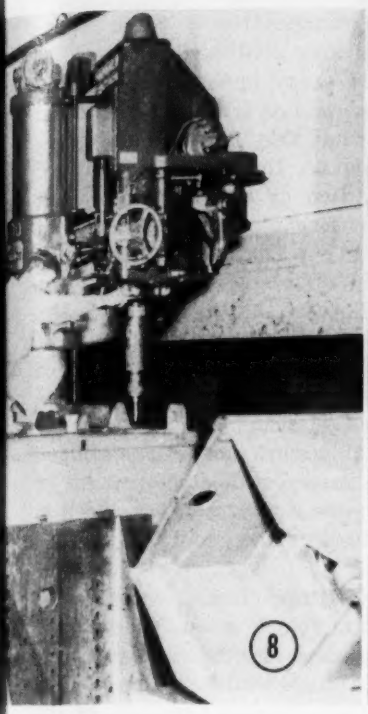


Fig. 8—Drilling cover mounting holes in crown of 250-ton, welded steel, double back geared, twin drive, two-point, eccentric geared press on a Cincinnati 6-foot radial drill press. Twenty-three such units handle all drilling of large press components

Fig. 9 — Planing key-ways on crown of a 250-ton, welded steel, eccentric gear press with a Cincinnati Hypro, open side, 11 x 36-foot bed planer. Dimensional tolerance of key-ways is held to 0.002-inch. Press when completed will weigh 85,000 pounds





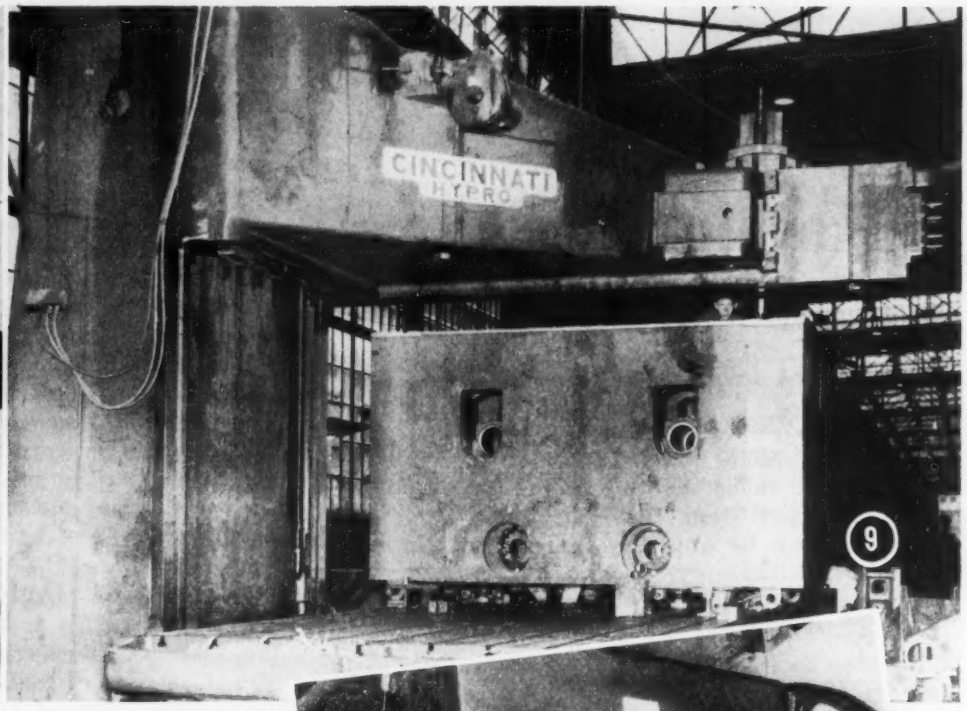


Fig. 10—*Checking 250-ton capacity, welded steel, double crank, gap press before shipment for possible run out and misalignment after initial 3-hour test run*

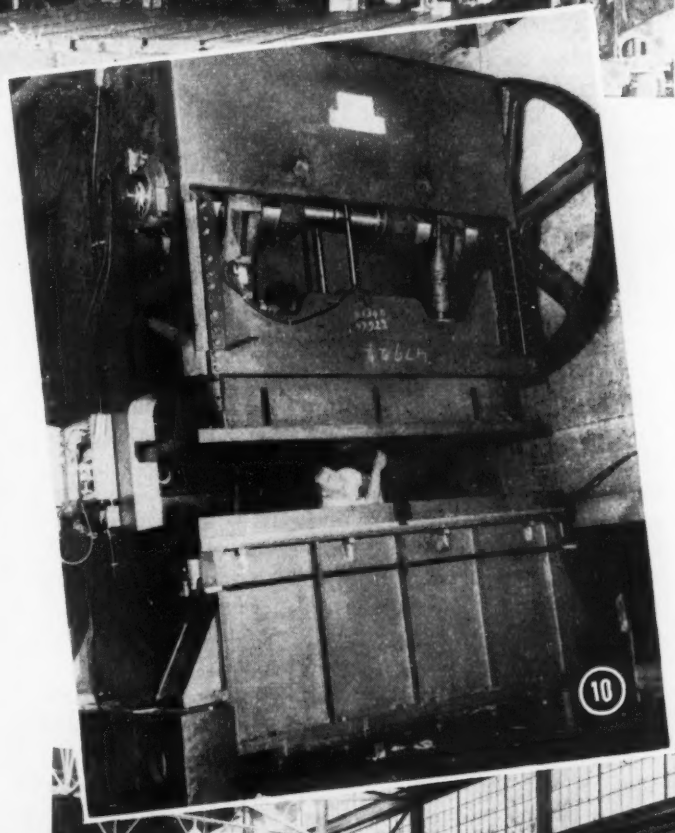
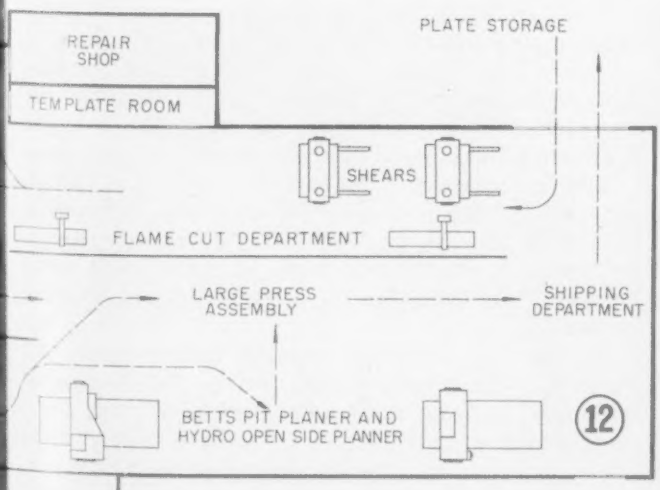


Fig. 11—*Approximately 60 tons of press weldments waiting to be run into one of three large annealing furnaces. Weldments are completely stress-relieved in a 24 to 30-hour annealing cycle*

Fig. 12—*Layout of plant showing flow of material of large press components*



Seen and Heard in the Machinery Field

By GUY HUBBARD
Machine Tool Editor

AS BRYANT SEES EUROPE: One of the highlights of the recent annual meeting of the American Machine Tool Distributors' Association at Detroit was the report made by A. G. Bryant, president, National Machine Tool Builders' Association, on the European trip from which he had returned only a few days prior to the meeting.

His was no sightseeing trip. It was a long, hard journey made at the behest of his Association in an effort to undo the initial mistake made by those who framed the Marshall Plan, in failing properly to cover machine tools in that plan. To rectify this situation, Mr. Bryant had to battle indifference and lack of understanding on the part of American administrators of the European Recovery Program. Also he had to cope with the situation very much like old-fashioned American "ward politics" in those countries which are beneficiaries under the program.

When a structure of any kind is to be solidly rebuilt, it is customary to begin with the foundations. The foundations of the economic structure of industrialized countries of Europe are made up of production machinery—including machine tools. At the present time quantities of modern machine tools should be installed to bolster up those foundations. However, exports of American machine tools to Europe—which in normal times amounted to 20 per cent of our production—lately has been reduced to a mere trickle when properly it should be a flood.

Realizing that these machines under the Marshall Plan must be sold abroad, not in Washington, Mr. Bryant investigated things at the European end of the line. He found manufacturers there in dire need of our machines. He found stacks of orders for them lying on the desks of European agents of American builders. However, licenses to export the money and import the machines are not forthcoming.

What is happening is that European politicians are going after those consumer goods which will satisfy the immediate appetites of their constituents and in doing so are elbowing aside the capital goods which make for permanent recovery. In other words, they are dealing with palliatives rather than correctives. Machinery men who have dared to protest against this situation actually have bluntly been told to keep their mouths shut.

That didn't keep A. G. Bryant from pounding home the facts of economic life to a lot of people in high places in this European picture. One thing that he told them was that the American people will rebel against continued "relief" measures if these European "ward politics" are long continued.

Furthermore, he seized every opportunity to educate American officials abroad on what machine tools are, what they do, and what they mean in European recovery. The ignorance on the part of many of those officials is exemplified by one man in a high position who said to Mr. Bryant, "Is a textile spinning lathe a machine tool?" That gentleman and a large number of his compatriots are now far better educated "machine tool wise" as a result of Mr. Bryant's swing around the European circuit.

This job which A. G. Bryant set out to do is of vital concern to all of us and we are indeed fortunate to have had the services of such an able industrial ambassador. However, this work must be continued increasingly and no one man can do it alone. All of us can help this cause in one way or another and it is up to every one of us to do so.

SINGLE POINT MACHINING: I am writing the copy for this page at six o'clock in the morning at the assistant manager's desk in the lobby of the Van Cleve Hotel in Dayton, while my roommate, Irwin Such, editor of STEEL, "sleeps the sleep of the just" in Room 1006 after a long, hard day of driving and machine tool plant visitation.

Our hosts yesterday (September 20) were Jerome Raterman, Stanley Brandenburg and several other officials of Monarch Machine Tool Co., Sidney, Ohio, who—as usual—saw to it that we saw a lot and learned a lot of what is going on these days in "turning circles".

The thing which impressed me most on this occasion was the tremendous progress which has been made in a short space of time in developing template-controlled turning with single point tools from essentially a toolroom and instrument shop operation to a mass production technique on work ranging all the way from small bevel gear blanks to railway axles. We are only at the beginning of this kind of thing, but it is such a substantial beginning that it has all the earmarks of one of those "revolutions in machine shop practice" which occur here in America every now and then.

Without going into details as to the particular system which we studied, let me say that a metal plate, accurately cut in profile of the work, is followed by a tracer finger which causes the single point turning tool to follow that profile exactly. Thereby the tool is caused to reproduce on the work every angle, curve, shoulder, neck, "straight-away" or other shape which the drawing calls for. Not only that, but in some cases two templates are used—one for guiding the roughing cut, the other for guiding the finishing cut—the first being lifted out of the way automatically to bring the latter template into working position.

As usual in important machine tool developments, several factors have contributed to the success of this one. Among them are: Carbide tooling, pneumatic control, and electronics. Not the least of these is carbide tooling, which permits long continued cutting at high speed with the necessarily "pointed" blades which must be used to reproduce sharply defined contours under the single point system.

FUNDAMENTALS OF
Forging Practice

Continuing his discussion of nonforging shop operations, the author describes heat treatments and equipment, scale removal by tumbling, blast cleaning or pickling

By WALDEMAR NAUJOKS

Part IX of the current forging series

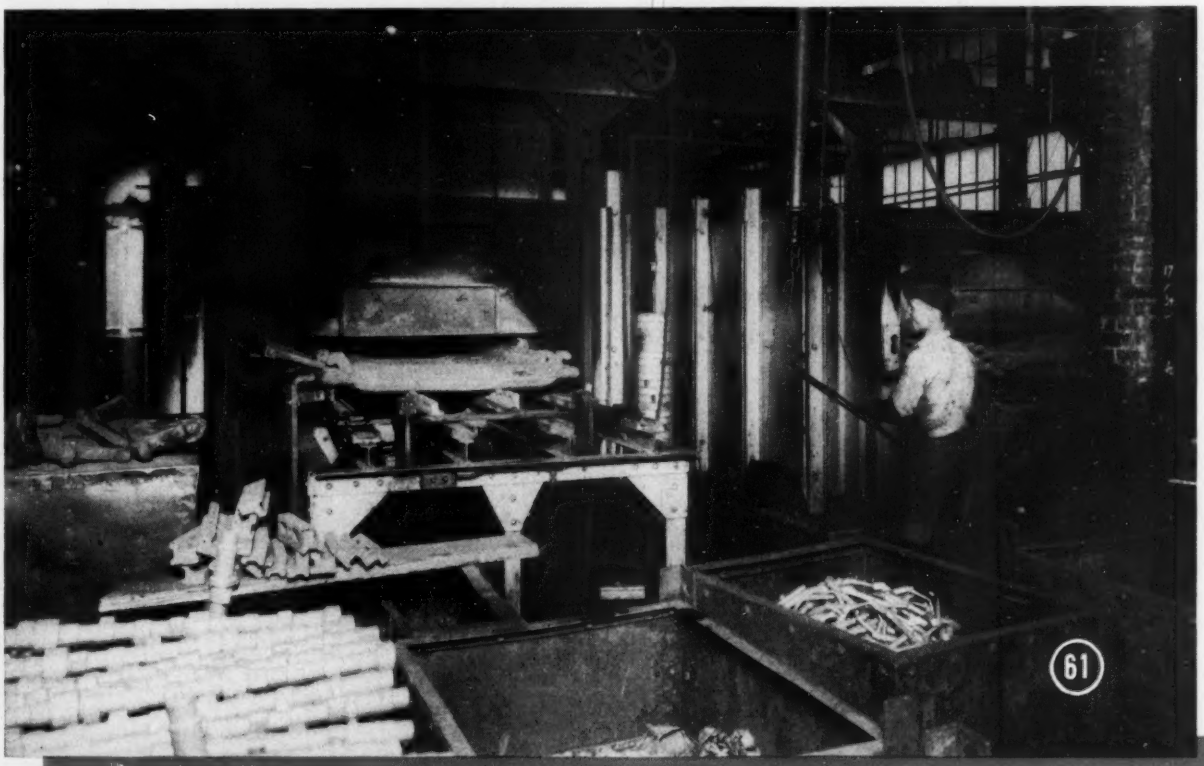
HEAT treating of metals has made rapid strides in the past several decades, changing rapidly from an uncertain art to an exact science. Up to about three decades ago, not too much was known about the heat treatment of metals, except hardening and tempering the edges of cutting tools and annealing some steels for improved machinability. Heat treatments for toughness or for resistance to fatigue were just laboratory novelties.

Today, heat treatments are used to impart hardness, toughness, resistance to shock, impact, wear and abrasion, and fatigue, and for many other desirable properties. It has been necessary for the forging plant to change the heat treating department from a simple annealing furnace or two, to a well-equipped shop where a large variety of heat treating is done under the supervision and direction of a competent plant metallurgist.

It is not the purpose here to present a complete picture of modern heat treating in a few paragraphs. Each phase of heat treating requires a large volume to cover it properly and this must be done by specialists who have a broad experience in the particular phase. Since the forging plant today is required to perform heat treating operations on most of its forgings, a few of the basic operations are described and their purpose explained. Greater detail on heat treating in general, or detail on any particular phase will be found in the many suitable books available.

The modern and up-to-date commercial production forging plant is equipped, usually, to perform normalizing, annealing, hardening and tempering on forgings in accordance with the heat treating specifications. It is important to bear in mind that any operation

Fig. 61—Charging end of oil-fired hardening and discharge end of normalizing furnace



in the heat treating department where the steel is heated up through the critical range and then cooled, either rapidly, normally, or slowly, is a heat treating operation. Many still believe that when heat treatment of a forging is mentioned, it is necessary to harden and temper.

Normalizing, or annealing is just as much classified as a heat treatment as are quenching and tempering. The correct method of specifying a treatment is to say, "The heat treatment consists of a normalize" . . "The forging is to be heat treated by quenching (or hardening) and tempering to 217-241 B.H.N." Where the heat treating operation is a simple normalize or an anneal, it is clear to state that "Forgings shall be normalized". However, where maximum impact strength is desired, it is not sufficient to state that the forging shall be heat treated to 197-221 B.H.N. for this hardness can be obtained by normalizing on some grades of steel. Hardness obtained by normalizing would not develop impact properties as high as those obtained by quenching and tempering. It is important that all desired heat treatments are stated clearly, and that they cannot be misinterpreted.

Normalizing and Annealing—Normalizing consists of heating steel forgings to above the critical temperature range of the particular steel until the temperature is uniform throughout the cross-section area of the parts and then permitting the forgings to cool in still air until they have reached the normal room temperature. Purpose of normalizing is to remove all internal forging and working strains so the metal structure is in its normal state as well as for grain refinement. On medium straight carbon steels the normalizing heat treatment imparts good machining properties. For complex alloy steels the normalizing operation is performed and followed by an annealing operation.

Annealing consists of heating steel forgings to above the critical temperature range of the steel and holding it at that temperature until it is uniform throughout. Then the forging is cooled slowly to normal room temperature. The cooling is retarded by permitting the forgings to cool slowly in the furnace, or by removing from the furnace and burying them in dry fine ashes, or crushed slag and silica. Cycle annealing consists of controlled cooling where the temperature drop is regulated in the cycle annealing furnace. The purpose of annealing is to remove all forging and working strains and to obtain better machinability in higher carbon steels than can be obtained by normalizing. Many of the alloy steels are annealed.

Quenching—Quenching is a heat treating operation in which the forgings are heated to above the critical temperature range and then cooled rapidly by quenching the forgings in a suitable quenching medium to develop hardness. The medium used for quenching to obtain rapid cooling depends upon the grade of steel being quenched and upon the speed of cooling necessary. Some steels can be cooled in most quenching media without damage to the part while other steels are limited to one or a few of the possible quenching solutions. Water, brine, caustic solution, oil, and air blast are the most common of the quenching media.

In general, the more rapid the cooling, the greater degree of hardness obtained in the part. Also, the faster the cooling, the greater will be the warpage in the part, particularly if it is long and thin. Some grades of steel cannot be quenched in water or in brine because they will crack by being cooled too

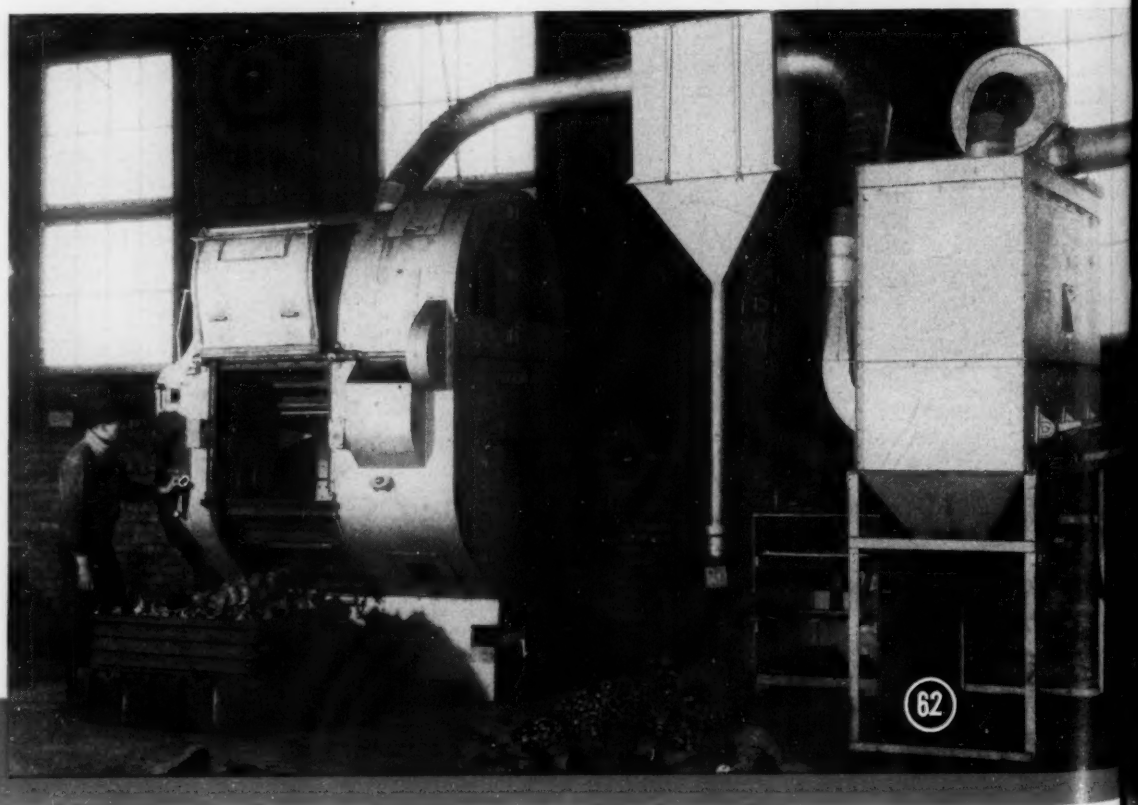


Fig. 62 — Seven-foot Rotoblast rocker barrel cleaning forged golf heads at Cornell Forge Co., Chicago. Courtesy Pangborn Corp.

Fig. 63 — American Wheelabrator blast cleaning machine. Courtesy Interstate Drop Forge Co.

Fig. 64 — Group of close-tolerance forgings. Courtesy Drop Forging Association

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rapidly. Generally, the caustic solutions and the brine solutions cool the parts with the greatest speed. Cooling in water is not quite so fast; cooling in oil is considerably slower than cooling in water. Cooling by means of air blast, which is usually termed "air quench", is the slowest of the various cooling media.

General information on the use of various quenching media, and the methods recommended for various grades of steel can be found in considerable literature on the subject. It is important to know that there are several means of hardening by quenching, and that instructions are available for the many different grades of steels.

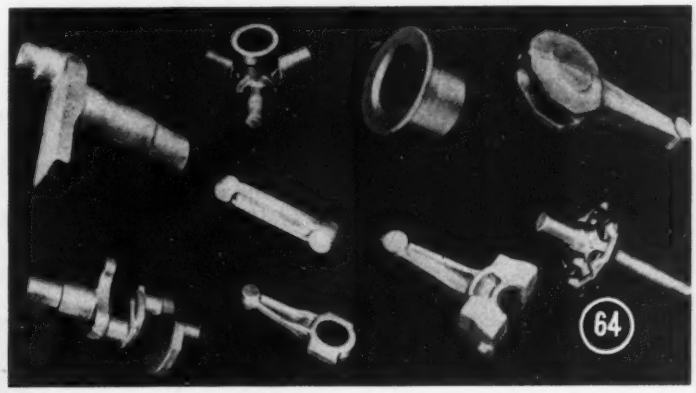
Tempering—Tempering is essential in all forgings that have been hardened by quenching. Tempering consists of reheating the forgings to some desired temperature below the critical temperature range so as to remove all quenching and hardening strains and to obtain the proper combination of hardness and toughness. Tempering is sometimes termed "drawing", but drawing is becoming an obsolete term and the term "tempering" is the correct one to use. The quenching operation puts the forging in its hardest state and the tempering operation relieves some of the hardness. Amount of hardness relieved depends upon the tempering temperature.

Where a high hardness is desired, the tempering temperature is kept low, just sufficiently high to remove the hardening strains without reducing the hardness appreciably. As the tempering temperature is increased, the hardness in the forging is decreased and toughness increased.

After the forgings are heat treated by hardening and tempering, the general physical properties of the part are indicated by the hardness of the forgings. In most commercial applications, hardness is used to assume the general physical properties. Where the data must be more exact, separate tensile and notch impact tests are given. These tests may be performed on test bars which have been heat treated with the forgings, or test specimens may be cut from several of the actual forgings.

Spheroidizing is a special annealing operation used on high carbon steels to obtain a greater degree of softness than can be obtained by the regular annealing method. Spheroidizing consists of a prolonged heating of the steel at a temperature slightly below the critical range and this is followed by a very slow cooling. The spheroidizing anneal is not used in the heat treatment of many of the forgings made from structural carbon or structural alloy steels, but it is used to a considerable degree on forgings that are manufactured from high carbon tool and from die steels.

Heat Treating Furnace — Furnaces used for the several heat treating operations vary to a considerable degree in type, size, shape and method of operation. In general, they are designed to keep the flame away from the work where oil or gas are used for heating. The batch or box type of heat treating furnace is similar in appearance to the batch type forging furnace, with a front door being used to load and unload. However, the furnace is usually underfired so the flame does not have direct contact with the work.



Previous articles in the current forging series appeared in the following issues of STEEL:

June 7, p. 100	Aug. 2, p. 91
June 21, p. 98	Aug. 16, p. 94
July 5, p. 76	Aug. 30, p. 59
July 19, p. 99	Sept. 13, p. 100

KORTICK

Rotary furnaces are used for heat treat heating; they too, are modified in design to accommodate their use in the heat treat department. Continuous furnaces are used to a considerable degree for the several heat treating operations; operations can be made automatic on furnaces that have been so designed. The straight continuous heat treating furnace may be of the pusher type through which trays or boxes may be pushed. In some cases, large forgings can be pushed through furnace directly.

Straight continuous heat treating furnaces may be of the continuous chain hearth type where the work is moved through the furnace on a moving hearth. These furnaces are designed to operate on suitable heating and cooling cycles for the particular grade of steel being heat treated. Cycles are controlled automatically by suitable temperature-control mechanism.

The car type heat treating furnace is similar to the batch type, except that the hearth of the furnace can be pulled out from the furnace for loading and unloading. The hearth is on wheels that run on a pair of tracks. Loading and unloading is simplified in using the car type furnace as compared to loading and unloading the regular batch type.

Heat treating furnaces, in addition to being heated by gas or oil, Fig. 61, may be heated by electricity. Use of a particular type of heating depends upon the furnace requirements with respect to the availability and economy of the fuel, and upon the conditions of atmosphere required. Many furnaces using gas or oil as fuel are equipped with devices which blanket the work in the heat treat furnace with some type of inert gas, so as to reduce or prevent decarburization of the surfaces of the forgings, after machining operations.

Induction heating is becoming used to a noticeable degree on some types of heat treating, particularly where surface heating is desired.

Cleaning Forgings—Most forgings require a cleaning operation after they are made or after heat treatment. Surfaces of the forgings are covered with a layer of iron oxide, commonly known as "scale". The forging scale is the result of heating the metal to above its critical temperature range where the oxygen of the air combines with the iron in the steel to form the scale. Scale can be considered a form of rapid rusting. For most of the uses to which forged parts and forgings are put, it is important that the scale be removed.

In machining operations, scale

(*Please turn to Page* 116)

Cutting Tool and Die Materials

SIXTH OF A SEVEN SECTION SERIES

This information on cutting tool and die materials prepared by the editors of STEEL lists factors to be considered in the quick selection of tool steels and carbide types to meet any given requirement. Sources, trade names and applications are conveniently presented. Other pertinent data include chemical analyses, heat treatments, quenching media, movement in hardening and machinability as annealed

Previous data on tool and die materials appeared in the following issues: p. 98, Aug. 16, 1948; p. 82, Aug. 23, 1948; p. 64, Aug. 30, 1948; p. 96, Sept. 6, 1948; p. 106, Sept. 13, 1948

MIDVALE CO., Nicetown, Philadelphia, Pa. — Listing No. 36

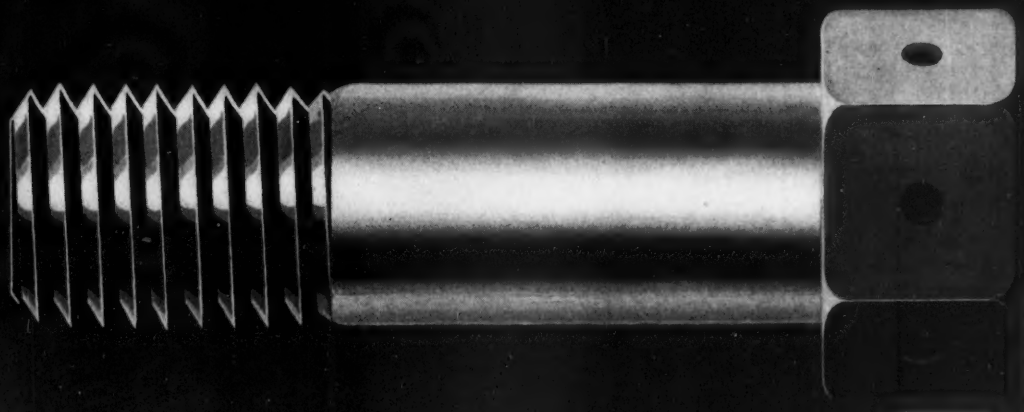
PRIMARY APPLICATION	TRADE NAME & TYPE	ANALYSIS (%)	SUGGESTED TEMPERATURE RANGES (°F) Forging	Finish Forging	Annealing	Preheating	Hardening	Tempering	Quenching Medium. ★ % Machinability Annealed. Movement in Hardening.
Cold Work Dies	CONSTANT Oil Hardening	C .90, Mn 1.15, Cr .50, W .50, Si .30	1900	1500	1450	....	1425– 1475	300– 500	Oil Mach. 90 Movement +A
Cold Work Dies	DIAMOND Oil Hardening	C 1.65, Mn .25, Cr 18.00, Si .25	1950	1600	1650	1300	1800– 1850	250– 300	Oil Mach. 40 Movement +A
Cold Work Dies	DIAMOND A Air Hardening	C 1.55, Mn .30, Cr 11.75, Mo .77, V 1.00, Si .30	1950	1600	1650	1300	1850– 1900	300– 800	Air Mach. 40 Movement +A
Cold Work Dies	E-VAN Water Hardening	C .95, Mn .25, V .25, Si .30	1900	1500	1450	....	1450– 1600	300– 500	Water Mach. 100 Movement —C
Cold Work Dies	N. D. Oil Hardening	C .95, Mn 1.60, Si .40	1900	1500	1450	....	1400– 1450	300– 500	Oil Mach. 90 Movement +A
Cold Work Dies (Cold Forming)	VA-CRO Oil Hardening	C .75, Mn .60, Cr .90, V .20, Si .25	1950	1500	1450	....	1575– 1625	350– 500	Oil Mach. 90 Movement +B
Cold Work Dies (Forming)	RE-CRO Water Hardening	C 1.20, Mn .25, Cr .50, Si .25	1900	1500	1450	....	1425– 1475	300– 500	Water Mach. 85 Movement —C
Cutting Tools	MID MAX High Speed	C .74, Mn .20, Cr 3.75, W 1.65, Mo 8.70, V 1.15, Si .35	2000	1600	1600	1500	2200– 2225	1000– 1075	Oil Mach. 60 Movement +A
Cutting Tools	V-STAR High Speed	C .83, Mn .25, Cr 4.20, W 6.50, Mo 5.00, V 1.90, Si .20	2100	1600	1600	1500	2210– 2240	1025– 1100	Oil Mach. 55 Movement +A
Cutting Tools	V-STAR SPECIAL High Speed	C .84, Mn .25, Cr 4.15, W 6.40, Mo 5.00, V 1.90, Co 5.50, Si .25	2100	1600	1600	1500	2210– 2240	1000– 1075	Oil Mach. 50 Movement +A
Cutting Tools	1-STAR High Speed	C .71, Mn .25, Cr 4.00, W 14.25, V 2.00, Si .25	2100	1600	1600	1500	2300– 2325	1025– 1100	Oil Mach. 60 Movement +A
Cutting Tools	2-STAR High Speed	C .71, Mn .25, Cr 4.00, W 18.25, V 1.10, Si .25	2100	1600	1600	1500	2325– 2350	1025– 1100	Oil Mach. 60 Movement +A
Cutting Tools	2-STAR SPECIAL High Speed	C .82, Mn .25, Cr 4.25, W 18.25, Mo .75, V 2.15, Si .25	2100	1600	1600	1500	2325– 2350	1000– 1075	Oil Mach. 50 Movement +A
Cutting Tools	3-STAR High Speed	C .71, Mn .25, Cr 4.00, W 18.25, Mo .65, V 1.25, Co 5.25, Si .25	2100	1600	1600	1500	2350– 2375	1000– 1075	Oil Mach. 50 Movement +A
Cutting Tools (Finishing)	SPECIAL FINISH Water Hardening	C 1.40, Mn .30, W 4.00, Si .30	1850	1500	1450	....	1500– 1550	250– 350	Water Mach. 75 Movement —C
Hot Work Dies (Hot Forming)	EXTRAD Air Hardening	C .35, Mn .30, Cr 5.00, W 1.50, Mo 1.65, V .20, Si 1.00	2000	1600	1600	1500	1850– 1925	1000– 1150	Air Mach. 70 Movement +A
Hot Work Dies (Punching, Shearing)	SPECIAL BOLT DIE Oil Hardening	C .35, Mn .20, Cr 1.75, W 11.00, V .35, Si .20	2100	1600	1600	1500	2000– 2150	1100– 1250	Oil Mach. 60 Movement +A
Shock Resisting (Repeated Impact)	BETA CHISEL Oil Hardening	C .50, Mn .30, Cr 1.35, W 2.25, V .25, Si .90	1950	1500	1450	....	1650– 1700	300– 1000	Oil Mach. 80 Movement +B
Shock Resisting (Repeated Impact)	DUREDGE Water Hardening	C .56, Mn .80, Mo .40, Si 1.60	1950	1500	1425	....	1575– 1625	300– 450	Water Mach. 85 Movement —C
Shock Resisting	MOIL POINT Oil Hardening	C .75, Mo .25	1950	1500	1450	....	1550– 1625	300– 400	Oil Mach. 100 Movement —B
Shock Resisting (Repeated Impact)	MULTOLE Water Hardening	C .56, Mn .70, Si 2.00	2000	1500	1450	....	1575– 1625	300– 450	Water Mach. 85 Movement —C
Shock Resisting (Repeated Impact)	NON-TEMP CHISEL Oil Hardening	C .50, Mn .60, Cr .65, Mo .25, Si .20	1950	1500	1450	....	1575- 1650	....	Oil Mach. 85 Movement +B
Shock Resisting (Repeated Impact)	SALVO Oil Hardening	C .62, Mn .30, Cr 1.00, V .20, Si .20, Ni 2.00	2000	1500	1550	....	1475– 1525	300– 600	Oil Mach. 60 Movement +B
Special Knife Blades	44 Air Hardening	C .85, Mn .90, Cr 11.00, W .85, V .20, Si 1.15	2000	1600	1600	1300	1800– 1850	300– 800	Air Mach. 50 Movement +A
Various Applications	CARBON EXTRA Water Hardening	Carbon steels with carbon and hardenability as desired	....	....	....	....	....	....	Water Mach. 100 Movement —C
Various Applications	CARBON-REGULAR Water Hardening	Carbon steels with carbon and hardenability as desired	1900	1500	1425	....	1400– 1475	300– 500	Water Mach. 100 Movement —C
Various Applications	CARBON-SPECIAL Water Hardening	Carbon steels with carbon and hardenability as desired	....	....	....	....	....	....	Water Mach. 100 Movement —C
Various Applications	DOUBLE EXTRA Water Hardening	C 1.00, Mn .20, Cr .60, Si .15	1900	1500	1450	....	1425– 1475	300– 450	Water Mach. 100 Movement —C
Various Applications	77 F Oil Hardening	C 1.00, Mn .35, Cr 1.25, Mo .40, Si .20	1900	1600	1500	....	1525– 1575	300– 400	Oil Mach. 80 Movement +B
Various Applications	77 W Oil Hardening	C 1.20, Mn .55, Cr 1.65, Mo .45, Si .20	1900	1600	1500	....	1525– 1575	300– 400	Oil Mach. 80 Movement +B

★ Last column indicates suggested Quenching Medium; Machinability Annealed using base 100 for carbon and low alloy steels; and Movement in Hardening by "A" for slight, "B" for intermediate, "C" for considerable movement—"+" denotes expansion, "—" denotes contraction.

PRIMARY APPLICATION	TRADE NAME & TYPE	ANALYSIS (%)	SUGGESTED TEMPERATURE RANGES (°F)						Quenching Medium. ★ % Machinability Annealed. Movement in Hardening.	
			Forging	Finish Forging	Annealing	Preheating	Hardening	Tempering		
McINNES STEEL CO., 441 E. Main St., Corry, Pa.										**Listing No. 37**
"Brake Dies"	McINNES FOLDER-DIE	(Special steel "Brake Die", furnished heat treated, ready for use.)								
Cold Work Dies	HI-CAR-HI. CH. Oil, Air Hardening	C 2.15, Cr 13.00, V 1.00, Ni .50	....	....	...	1200	1700–1800	300–1000	Oil, Air	
Cold Work Dies	M-10-AIR HARD Oil, Air Hardening	C 1.00, Mn .70, Cr 5.00, Mo 1.05	...	...	....	1725	1800	300–1100	Air	
Cold Work Dies	CELLO Oil Hardening	C .90, Mn 1.20, Cr .50, W .50, Si .35	....	....	....	1150	1450–1525	300–800	Oil	
Cold Work Dies	VAN. CRUC. Water Hardening	C 1.00, Mn .30, V .21, Si .30	....	...	....	1450	1450–1500	500–900	Water	
Cutting Tools	DURO HI SP Oil Hardening	C .80, Cr 4.00, W 18.50, Mo 4.00, Co 7.00	....	...	....	1500	2225–2275	1000–1100	Oil	
Cutting Tools	MOLY HI SP Oil Hardening	C .80, Cr 4.00, W 5.50, Mo 4.25, V 1.50	....	....	....	1500	2225	400–1000	Oil	
Cutting Tools	"V" HI. SP. Oil Hardening	C .75, Cr 4.00, W 18.50, V 1.10	....	....	....	1550	2325–2375	800–1200	Oil	
Dies and Tools	McINNES SPECIAL Water Hardening	C 1.00, Mn .25	..	.	.	1375	1450	300–1000	Water	
Dies and Tools	SUPERIOR Water Hardening	C .95, Mn .40, Si .30	....	...	....	700	1430–1500	300–600	Water	
General Tool Steel	MISCO A Water Hardening	C .90, Mn .40	....	....	....	800	1450	300–600	Water	
General Tool Steel	MISCO B Water Hardening	C .80, Mn .40	....	....	....	800	1450	300–600	Water	
Hot Work Dies	RECORD "A" Oil Hardening	C .50, Cr 3.75, W 14.00, V .75	....	...	...	1500	1950–2150	500–1400	Oil	
Hot Work Dies	SPECIAL CHR. NICK. Oil Hardening	C .70, Mn .70, Cr .55, Ni 1.50	....	....	....	1000	1475–1525	200–800	Oil	
PENINSULAR STEEL CO., 1030-40 McDougal, Detroit 7, Mich.										**Listing No. 38**
Coining, Swaging Dies	BROWN LABEL Oil Hardening	C .47-.53, Mn .15-.25, Cr 1.10-1.30, W 2.25-2.75, V .15-.25, Si .65-.85	2000	1600	1450–1500	1250	1700–1750	400–850	Oil	Mach. 80
Cold Heading	GRAY LABEL Water Hardening	C .91-.98	....	....	....	....	1430–1625	400–600	Water	Mach. 100
Cold Work Dies (Forming)	GREEN LABEL Oil Hardening	C .50-.55, Mn .70-.90, Cr .90-1.10, V .15-.25	1900	1700	1550–1650	1200	1500–1650	300–1000	Oil	Mach. 100
Cold Work Dies (Blanking, Forming)	BLACK LABEL Water Hardening	C 1.05-1.15, Cr .50-.60, V .15-.25	1850	1500	1375–1425	1000–1200	1425–1475	300–400	Water	Mach. 95
Cold Work Dies (Blanking, Forming)	BLUE LABEL Water Hardening	C 1.00-1.10, V .15-.25	1875	1475	1375–1425	1000–1200	1425–1450	300–400	Water	Mach. 100
Cold Work Dies (Blanking, Forming, Coining, Punching, Rolling)	WHITE LABEL Oil, Air Hardening	C 1.40-1.60, Cr 11.00-13.00, Mo .70-.90, V .30-.40	2000	1700	1600–1650	1150–1250	1850–1875	300–950	Air	Mach. 75
Cold Work Dies (Forming, Rolling, Blanking)	YELLOW LABEL Oil Hardening	C .85-.95, Mn 1.10-1.25, Cr .40-.60, W .40-.60, V .15-.25, Si .20-.40	1950	1850	1475–1525	1150–1250	1450–1500	300–400	Oil	Mach. 85
Cold Work Dies (Forming, Draw Rings)	HOLLOBAR Oil Hardening	C .95-1.05, Mn .30-.50, Cr 1.00-1.20, Mo .25-.30	1950	1850	1475–1525	1150–1250	1475–1550	300–400	Oil	Mach. 85
Hobbed Cavities	HOB-A-FORM Water Hardening	C .06 Max., Mn .15, Si .10 Max.	....	....	1425–1475	....Carb. ... ...Reheat	1700–1750 1425–1475	300–400	Water	Mach. 85
Hobbed Cavities	PEN-HOB Water, Oil Hardening	C .10 Max., Mn .50, Cr .60, Ni 1.25	....	....	1425–1475	....Carb. ....Reheat	1700–1750 1450–1500	300–400	Water, Oil	Mach. 90
Master Gages, Hobs	WHITE LABEL (Listed Above)*									
Plastic Mold Master Hobs	BROWN LABEL (Listed Above)									
Plastic Molds (Machined Cavities)	GREEN LABEL (Listed Above)									
Plastic Molds (Hubs)	YELLOW LABEL (Listed Above)									
Punching, Shearing	SILVER LABEL Water, Oil Hardening	C .55-.60, Mn .65-.80, Mo .40-.50, V .16-.25, Si 1.70-2.00	1950	1650	1425–1475	1200	1600–1650	300–1000	Oil, Water	Mach. 100
Punching, Shearing	(See BLACK LABEL, BLUE LABEL, Listed Above)									
Shock Resisting	BROWN LABEL (Listed Above)									
Shock Resisting (Tool Shanks)	SILVER LABEL (Listed Above)									
Tool Shanks, Wrenches	GREEN LABEL (Listed Above)									

* Harden at 1750-1800° F; Quench in Oil

One product, well made



CHANDLER

always climbs toward higher standards, because we stand behind the work our metal fasteners do for you

CHANDLER PRODUCTS CORP.

1491 CHARDON RD. CLEVELAND 17, OHIO

PRIMARY APPLICATION	TRADE NAME & TYPE	ANALYSIS (%)	SUGGESTED TEMPERATURE RANGES (°F)						Quenching Medium. ★ % Machinability Annealed. Movement in Hardening.
			Forging	Finish Forging	Annealing	Preheating	Hardening	Tempering	
HORACE T. POTTS CO., D & Erie Ave., Philadelphia 34, Pa.									**Listing No. 39**
Die Casting Dies	"ELASTUF 44"	C .50, Bal. Cr, Ni, Mo, Fe	Heat Treated and Stress Relieved to BHN 415						Commercially Machinable
High Stress, High Wear Machinery Parts.	"ELASTUF TYPE A2"	C .30-.50, Bal. Cr, Ni, Mo, Fe	Heat Treated and Stress Relieved to BHN 262-341						Commercially Machinable
High Stress, High Wear Machinery Parts.	"ELASTUF 44"	C .50, Bal. Cr, Ni, Mo, Fe	Heat Treated and Stress Relieved to BHN 415						Commercially Machinable
Plastic Molding Dies (Ejector Pins)	"ELASTUF 44"	C .50, Bal. Cr, Ni, Mo, Fe	Heat Treated and Stress Relieved to BHN 415						Commercially Machinable
Punching and Shearing	TROJAN #8 (Unannealed) Water Hardening	C .75-.85, Mn .35-.50	....	....	1350	1200	1450	350–400	Water Movement +B
Punching and Shearing	TROJAN #9½ (Annealed)	C .90-1.00, Mn .35-.50	....	....	1300	1200	1450	350–400	Water Movement +B
REPUBLIC STEEL CORP., 1970 Carter Rd., Cleveland 13, O.									**Listing No. 40**
Cold Work (Forming)	C-C Water Hardening	C 1.10, Mn .30, Cr .60	1900–2100	1600	1450	1200–1250	1450–1500	300–600	Water Mach. 85 Movement —B
Cold Work (Forming)	UA-8 Water Hardening	C 1.00, Mn .35, Cr 1.35, Mo .35	1800–1900	1600	1450	1200–1250	1450–1575	300–800	Water, Oil Mach. 80 Movement B
Cold Work (Hubs)	C-V Oil Hardening	C .50, Mn .30, Cr 1.20, W 2.20, V .25	1900–2100	1650	1450	1250	1600–1800	400–1000	Water, Oil Mach. 85 Movement +B
Cold Work (Punching, Shearing, Forming)	DUMOST #1 Water Hardening	C .85, Mn .30, V .30	1800–2100	1400	1400–1450	1200–1300	1450–1550	300–600	Water Mach. 90 Movement —B
Cold Work (Punching, Shearing, Forming)	DUMOST #2 Water Hardening	C .95, Mn .30, V .30	1800–2100	1400	1400–1450	1200–1300	1450–1550	300–600	Water Mach. 90 Movement —B
Cold Work (Punching, Shearing, Forming)	EXTRA CARBON Water Hardening	C .65-1.40, Mn .30, Si .15-.30	1800–2100	1600	1400–1450	1250	1425–1550	300–600	Water Mach. 100 Movement —B
Cold Work (Punching, Shearing, Forming)	SPECIAL CARBON Water Hardening	C .65-1.40, Mn .30, Si .15-.30	1800–2100	1600	1400–1450	1250	1425–1550	300–600	Water Mach. 100 Movement —B
Cold Work (Punching, Shearing, Forming)	STANDARD CARBON Water Hardening	C .65-1.00, Mn .30, Si .15-.30	1800–2100	1600	1400–1450	1250	1425–1550	300–600	Water Mach. 100 Movement —B
Cold Work (Forming, Shearing)	UA-6 Oil Hardening	C .65, Mn .60, Cr 1.00, W .25	1800–2100	1600	1450	1250	1450–1650	300–1000	Oil, Water Mach. 75 Movement —B
Cold Work Dies (Blanking, Forming)	DUMOST #3 Water Hardening	C 1.10, Mn .30, V .30	1800–2100	1500	1400–1450	1200–1300	1425–1500	300–600	Water Mach. 85 Movement —B
Cold Work Dies (Blanking, Forming, Shearing)	AIRALOY Air Hardening	C 1.00, Mn 2.00, Cr .90, Mo .90	1900–2100	1800	1390–1400	1200–1300	1500–1600	300–800	Air Mach. 65 Movement +A
Cold Work Dies (Blanking, Forming, Shearing)	ARRESTITE Oil Hardening	C .90, Mn 1.50, Cr .20	1800–2100	1600	1400	1200–1250	1425–1475	300–600	Oil Mach. 90 Movement A
Cold Work Dies (Blanking, Forming, Shearing)	SPECIAL OIL HARDEN Oil Hardening	C .90, Mn 1.20, Cr .50, W .50	1800–2100	1650	1400–1425	1200–1250	1450–1500	300–600	Oil Mach. 90 Movement +A
Cold Work Dies (Blanking, Forming, Shearing)	404 Air Hardening	C 1.55, Cr 12.00, Mo .75, V .25	1950–2050	1800	1600	1250–1300	1750–1850	400–1000	Air, Oil Mach. 50 Movement +A
Cutting Tools (Finishing)	FAST FINISHING Water Hardening	C 1.35, W 3.50	1900	1700	1600	1250–1300	1440–1600	350–400	Water Mach. 65 Movement —C
Cutting Tools (Roughing)	B-F HIGH SPEED High Speed	C .72, Mn .30, Cr 4.00, W 18.00, V 1.00	2000–2200	1700	1600	1550–1600	2250–2350	1050–1100	Oil, Air Mach. 50 Movement +A
Cutting Tools (Roughing)	COBALT HIGH SPEED High Speed	C .72, Mn .30, Cr 4.00, W 18.00, Mo .50, V 1.00, Co 5.00	2200	1750	1600	1550–1600	2350–2400	1050–1100	Oil, Air Mach. 45 Movement +A
Cutting Tools (Roughing)	SPECIAL M-O High Speed	C .82, Mn .30, Cr 4.15, W 6.40, Mo 5.00, V 1.90	1900–2050	1750	1600	1450–1550	2200–2250	1000–1050	Oil, Air Mach. 55 Movement +A
Cutting Tools (Roughing, Finishing)	IXL High Speed	C .80, Mn .30, Cr 4.00, W 19.00, Mo .75, V 2.00	2000–2200	1750	1600	1550–1600	2350–2375	1050–1100	Oil, Air Mach. 45 Movement +A
Hot Work (Forming, Shearing)	6-H-W Air Hardening	C .60, Cr 4.00, Mo .45, V .75	1900–2050	1700	1450–1475	1400–1475	1700–1850	900–1050	Air, Oil Mach. 75 Movement +B
Hot Work Dies (Forming, Punching)	10-H-W Air Hardening	C .35, Cr 5.00, W 1.25, Mo 1.50, Si 1.00	2000–2100	1750	1550–1600	1300–1400	1800–1900	900–1150	Air, Oil Mach. 70 Movement B
Hot Work (Hot Forming)	XX-SUPERIOR Air Hardening	C .90, Cr 4.00, Mo .45, V .75	1950–2050	1700	1450–1475	1400–1450	1650–1850	800–1100	Air, Oil Mach. 75 Movement +B
Hot Work (Punching, Forming)	AIR HARDENING #30 Air Hardening	C .30, Cr 3.50, W 9.00, V .25	2000–2200	1700	1600	1500–1550	1900–2200	1000–1250	Air, Oil Mach. 70 Movement +B
Hot Work (Punching, Shearing, Forming)	AIR HARDENING #40 Air Hardening	C .45, Cr 3.00, W 13.00, V .25	2000–2200	1700	1600	1500–1550	1900–2150	1000–1250	Air, Oil Mach. 65 Movement +B
Hot Work (Punches, Dies)	C-V	(Listed Above)							
Hot Work (Punching, Forming)	RESCO Air Hardening	C .30, Cr 2.75, W 9.50, Mo .25, Ni 1.75	2000–2200	1700	1600	1500–1550	2000–2300	1000–1300	Air, Oil Mach. 70 Movement +B

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Whistling good idea for saving gas

Fill 'er up! And don't worry about a gas overflow with its fire hazard and waste. Not on this car!

For a keen-thinking chap took a piece of tubing and designed a whistling gas-tank signal for automobiles that warns the attendant the tank is getting full. And his product is sweeping the market.

The tubing used is furnished by Bundy. *The idea was like any you could have.* For you'd be amazed at where you can use Bundy tubing to put a business in the clover.

Look at the examples at the right. Some show present uses for Bundy. Others show altogether *new* ones which we think could pay handsome dividends to someone who would make them . . . maybe you. Better read them carefully.

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

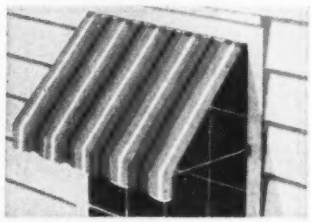
*REG. U. S. PAT. OFF.

6 What is your design or production problem . . . or even your idea? Regardless of the kind of product, Bundy engineers might easily help you over the hurdles through a simple use of Bundyweld along the line . . . and give you a stronger, better unit made faster at less cost. It's worth investigating. Just call or write *Bundy Tubing Company, Detroit 14, Michigan.*

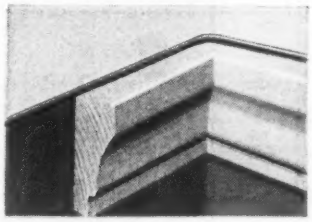
1 Automotive Engineers needed a strong, vibration-proof tubing for hydraulic brake lines. Someone said, "Let's try Bundyweld*... it's double-walled from a single strip." Now Bundy's in 95% of all cars!

2 Manufacturers of water coolers snapped up Bundy steel tubing, too, for condensers and other vital tubing parts. It's fast-cooling, easily fabricated. (Beer coils, too, are made of Bundyweld . . . in nickel, for purity!)

3 Bundy's in ball-point pens, too. Cartridges of Bundy Tubing hold "ink" enough for years. Tubular toys and fishing-rod tips are other unusual places where Bundy's been used to someone's profit. As for new ideas—



4 Why not use weather-resistant Bundyweld for lightweight awning frames? Bundy might well lower costs, give faster, easier installations. It's machineable, ductile, strong and readily bent to any turn.



5 Automatic burglar and fire alarm systems of Bundyweld are another idea to check on. Bundy's thinner walls mean faster heat conductivity. No other tubing offers all of Bundy's features. In steel, Monel or nickel.

WHY BUNDYWELD IS BETTER TUBING

Bundyweld Tubing, made by a patented process, is entirely different from any other tubing. It starts as a single strip of basic metal, coated with a bonding metal.

This strip is continuously rolled twice laterally into tubular form. Walls of uniform thickness and concentricity are assured by close-tolerance, cold-rolled strip.

Next, a heating process fuses bonding metal to basic metal. Cooled, the double walls have become a strong, ductile tube, free from scale, held to close dimensions.

Bundyweld comes in standard sizes, up to 5/8" O.D., in steel (copper or tin coated), Monel or nickel. Special sizes can be furnished to meet your requirements.

Bundy Tubing Distributors and Representatives: *Cambridge 42, Mass.:* Austin-Hastings Co., Inc., 226 Binney St. • *Chattanooga 2, Tenn.:* Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg. • *Chicago 32, Ill.:* Lapham-Hickey Co., 3333 W. 47th Place • *Elizabeth, N.J.:* A. B. Murray Co., Inc., Post Office Box 476 • *Philadelphia 3, Penn.:* Rutan & Co., 404 Architects Bldg. • *San Francisco 10, Cal.:* Pacific Metals Co., Ltd., 3100 19th St. • *Seattle 4, Wash.:* Eagle Metals Co., 3628 E. Marginal Way • *Toronto 5, Ont., Canada:* Alloy Metal Sales, Ltd., 881 Bay St. **Bundyweld nickel and Monel tubing is sold by International Nickel Company distributors in all principal cities.**

PRIMARY APPLICATION	TRADE NAME & TYPE	ANALYSIS (%)	SUGGESTED TEMPERATURE RANGES (°F)						Quenching Medium. ★ % Machinability Annealed. Movement in Hardening.
			Forging	Finish Forging	Annealing	Preheating	Hardening	Tempering	
Hot Work (Punching, Forming)	.550 Oil Hardening	C .45, Mn .65, Cr 1.60, Mo 1.10, V .25	1900-2100	1650	1450	1300-1400	1650-1750	900-1300	Oil Mach. 80 Movement +B
Plastic Mold Dies (Hubbed Cavities)	PLASTIC DIE Water Hardening	C .08 Max., Mn .10 Max.							
Shock Resisting (Intermittent Impact)	UA-4 Oil Hardening	C .50, Mn .60, Cr 1.00, W .25	1800-2100	1600	1450	....	1450-1750	400-1200	Oil, Water Mach. 80
Shock Resisting (Repeated Impact)	M-TUNGSTEN Oil Hardening	C .50, Mn .35, Cr 1.00, W 1.00	1900-2100	1550	1450	1250	1500-1650	350-600	Oil, Water Mach. 80 Movement B
Shock Resisting (Repeated Impact)	SPECIAL AUTO-A Oil Hardening	C .30, Mn .65, Cr .90, V .20	1800-2100	1600	1450	1250	1550-1750	350-1000	Oil, Water Mach. 80
Shock Resisting (Repeated Impact)	SPECIAL AUTO-D Oil Hardening	C .50, Mn .65, Cr .90, V .20	1800-2100	1600	1450	1250	1450-1700	350-1000	Oil, Water Mach. 80
Shock Resisting (Repeated Impact)	SPECIAL PUNCH Water Hardening	C .55, Mn .85, Cr .30, V .30, Si 2.00	1800-2100	1550	1400	1250-1300	1600-1800	300-900	Water, Oil Mach. 80 Movement —B
JOSEPH T. RYERSON & SON INC., P. O. Box 8000-A, Chicago 80, Ill.									**Listing No. 41**
Chisels, Drills	VD CHISEL STEEL Water Hardening	C .77, Mn .35, Mo .18, Si .23	....	... .	....	....	1425-1550	200-700	Water
Cold Work Dies	RDX Water Hardening	C .77, Mn .35, Mo .18, Si .25	....	....	....	....	1425-1550	200-700	Water
Cold Work Dies	RY-ALLOY Oil Hardening	C .92, Mn 1.65, Mo .27, Si .29	2000	....	1400	....	1400-1475	300-700	Oil
Cold Work Dies	VD Water Hardening	C 1.00, Mn .23, V .18, Si .25	1750-1850	....	1450	....	1400-1475	200-700	Water
Plastic Forming Dies	RY-ALLOY	(Listed Above)							
Punching and Shearing	RDX	(Listed Above)							
Punching and Shearing	VD	(Listed Above)							
SIMONDS SAW & STEEL CO., Ohio Street, Lockport, N. Y.									**Listing No. 42**
Cold Work Dies	C.C.M. Air Hardening	C 1.55, Mn .25, Cr 12.00, Mo .80, V .35, Si .35	2000-1800	1600	1600-1650	....	1800-1900	400-1000	Air Movement A
Cold Work Dies	TEENAX No. 46 Oil Hardening	C .90, Mn 1.25, Cr .50, W .50, V .20, Si .20	1850-1750	1500	1425-1475	1200-1250	1450-1500	300-450	Oil Movement A
Cutting Tools	BLUE LABEL Water Hardening	C as desired, P .02 max, S .02 max, V optional	1900-1750	1450	1375-1425	....	1400-1500	300-600	Water
Cutting Tools	DIAMOND S Water Hardening	C as desired, P .025 max., S .025 max, V optional	1900-1750	1450	1375-1425	....	1400-1500	300-600	Water
Cutting Tools	LOCKPORT SPECIAL High Speed	C .80, Cr 4.25, W 18.50, Mo .70, V 2.25	2100	1700	1600-1650	1550	2300-2375	1000-1100	
Cutting Tools	MOLVA-T High Speed	C .80, Cr 4.00, W 5.75, Mo 4.50, V 1.60	2050	1650	1550-1600	1500	2225-2275	1000-1100	
Cutting Tools	RED STREAK High Speed	C .72, Cr 4.00, W 18.00, V 1.00	2100	1700	1600-1650	1550	2300-2375	1000-1100	
Cutting Tools	S.T.M. High Speed	C .80, Cr 3.75, W 1.50, Mo 8.75, V 1.25	2000	1650	1550-1600	1500	2150-2250	1000-1100	
Hot Work Dies	CHROME HOT DIE Air Hardening	C 1.00, Mn .30, Cr 4.00, Si .30	1950-1750	1600	1500-1550	1300-1450	1750-1825	600-1100	Air
Hot Work Dies	D.N.V. Hot Work Oil, Air Hardening	C .32, Mn .30, Cr 3.25, W 9.50, V .40, Si .35	2000-1900	1650	1550-1600	1500	1900-2150	1100-1300	Air, Oil
Shock Resisting	COMMANDO 47 Oil Hardening	C .47, Mn .25, Cr 1.40, W 2.00, Mo .25, V .25, Si .80	1950-1800	1600	1450-1500	....	1650-1775	300-1100	Oil
Shock Resisting	HAVOC Water, Oil Hardening	C .50, Mn .40, Mo .50, V .20, Si 1.00	1950-1800	1550	1450-1500	....	1550-1600	300-700	Water
			....	....	....	....	1600-1675	300-700	Oil
SWEDISH-AMERICAN STEEL CORP., 429 Kent Ave., Brooklyn 11, N. Y.									**Listing No. 43**
Cold Work Dies	HY PRO Oil, Air Hardening	C 1.65, Mn .35, Cr 11.00-12.00, Mo .80, V .30, Si .30	1950	1700	1650	1250	1800	450 or 900	Still Air Movement A
Cold Work Dies	NON PA REIL Oil Hardening	C .90, Mn 1.15, Cr .50, W .50, V .20, Si .25	1900	1500	1400	1200	1475	300-450	Oil Movement A

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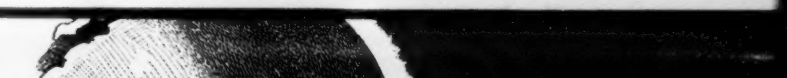


Lebanon and Firth-Vickers join forces . . . *to bring you the best in centri-die (centrifugal) permanent mold alloy castings.* For heat and corrosion resistant service.

THE centri-die process of producing centrifugal castings in permanent molds is the most important improvement of a generation of alloy steel foundry progress. Developed by Firth-Vickers of Sheffield, England, before the "Battle of Britain", the unusual design characteristics and integrity of these castings made possible the famous Rolls Royce, De Havilland and other British jet engines.

Now Firth-Vickers has chosen the Lebanon Steel Foundry as its American licensee and correspondent, with full access to all their metallurgical, design and other engineering data. This makes available to American industry the newest techniques of permanent-mold centrifugal casting. By this process tubular and cylindrical structures can be made out of alloys which are difficult or impossible to forge or cast by any other method. For us and our customers it virtually wipes out years of costly experimentation. An addition to our foundry at Lebanon has just been completed and we are now producing centri-die alloy castings of known characteristics and assured integrity.

LEBANON STEEL FOUNDRY • LEBANON, PA.

"In The Lebanon Valley"

LEBANON ALLOY AND STEEL Castings

CIRCLE L

HIGHLIGHTS OF LEBANON PROGRESS

1911

Company organized.

1915

Herault furnace installed, one of the first electric furnaces in the U.S.

1926

Production of alloy steel castings began.

1930

Ajax high frequency induction furnaces installed. The first used in this country for producing alloy castings.

1933

Lebanon becomes exclusive American licensee of George Fischer, Ltd., Schauffhausen, Switzerland. Swiss Chamotte method first used in America in producing alloy and carbon steel castings.

1948

Lebanon and Firth-Vickers Stainless Steel Ltd. sign agreement, making available to American buyers of heat and corrosion alloy castings all the experience and methods developed by the largest producer of such castings in Europe.

Get This Book
"Centri-die Centrifugal Castings"

Prepared by Lebanon and Firth-Vickers engineers to explain fully the practical advantages of the centri-die process of making alloy castings centrifugally in permanent molds. While it has been written primarily for the design and metallurgical engineer, it also will be of interest to executives who like to keep abreast of new manufacturing and production methods. Write for a copy of Bulletin M.

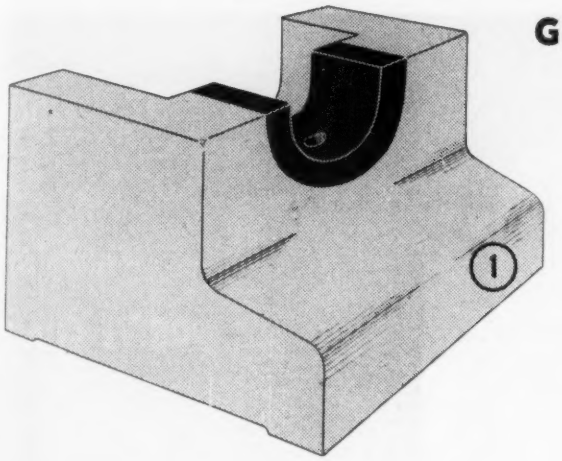
PRIMARY APPLICATION	TRADE NAME & TYPE	ANALYSIS (%)	SUGGESTED TEMPERATURE RANGES (°F)						Quenching Medium. ★ % Machinability Annealed. Movement in Hardening.
			Forging	Finish Forging	Annealing	Preheating	Hardening	Tempering	
Cold Work Dies	WHITE LABEL Water Hardening	C .90-1.05, Mn .35, Si .25	1875	1500	1400	....	1425	300–600	Water Movement B
Cold Work Dies	YELLOW LABEL Water Hardening	C .95-1.10, Mn .35, V .20, Si .25	1875	1500	1400	....	1400	300–600	Water Movement B
High Speed	BRILLIANT Oil, Air Hardening	C .75, Mn .25, Cr 4.00, W 18.00, V 1.00, Si .25	2050	1750	1650	1450	2300	1050	Oil Movement B
Plastic Molding Dies	HOBRITE Water Hardening, Carburize	C .05, Mn .11, Si .05							
Plastic Molding Dies	DUTRAX 7 Oil Hardening, Carburize	C .45, Mn .25, Cr 1.25, W 2.15, Si .20	1900	1600	1450	1250	1725	300–500	Oil Movement A
Plastic Molding Dies (Master Hobs)	DUTRAX 3 Oil Hardening, Carburize	C .45, Mn .25, Cr .80, W 1.10, Mo .25, Si .20	1900	1600	1450	1250	1700	300–500	Oil Movement A
TENNESSEE COAL, IRON & RAILROAD CO., Brown-Marx Bldg., Birmingham 2, Ala.									**Listing No. 44**
General Purpose Carbon Steel Tools	TENNESSEE SPECIAL Water Hardening	C .90-1.01, Mn .30-.50, Si .15-.30	1800–1900	1475	1450	....	1420–1450	300–1000 As required	Water or Oil Mach. 100 Movement +A
TIMKEN ROLLER BEARING CO., 1835 Dueber Ave., S. W., Canton 6, O.									**Listing No. 45**
Cold Work Dies (Blanking, Forming, etc.)	GRAPH-MO Oil Hardening	C 1.50 avg., Mn .50 max., Mo .25 avg., Si .80 avg.	Max. 1950	Min. 1500	1480 slow cool	....	1450–1550*	300‡ and up	Oil Mach. +100 Movement A
Cold Work Dies (Bar, Tube Drawing, Draw Dies, Stainless)	GRAPH-TUNG Water Hardening	C 1.50 avg., Mn .50 max., W 2.80 avg. Mo .50 avg., Si .65 avg.	Max. 1900	Min. 1500	1430	....	1450–1500†	300 and up	Water or Brine Mach. 85 Movement B
Cut Off Bushing	GRAPH TUNG	(Listed Above)							
Dies (Bar, Tube Drawing, etc.)	GRAPH-AL Water Hardening	C 1.50 avg., Mn .30 max., Si .15-.25, Al .12-.20	Max. 1925	Min. 1500	1380	....	1450–1500†	300 and up	Water or Brine Mach. Movement B 100
Dies (Blanking, Cold Forming, etc.)	GRAPH M.N.S. Air Hardening	C 1.50 avg., Mn 1.25 avg., Cr .50 avg., Mo .50 avg., Si 1.00 avg., Ni 1.75 avg.	Max. 1950	Min. 1500	1500	....	1450–1675	300 and up	Air Mach. 85 Movement A
Dies (Cold Working, Blanking, Forming)	GRAPH-SIL Water Hardening	C 1.50 avg., Mn .50 max., Si .90 avg.	Max. 1925	Min. 1500	1380	....	1450–1550†	300 and up	Water or Brine Mach. Movement B +100
Lathe Centers	GRAPH-TUNG	(Listed Above)							
Punches (Blanking, Forming, Piercing, etc.)	GRAPH-MO	(Listed Above)							
Tube Drawing Mandrels	GRAPH-AL	(Listed Above)							

* Depending on size. † Based on section. ‡ Depending on service requirement.

TUNGSTEN ELECTRIC CORP., Div. of Callite Tungsten Corp., 540—39th St., Union City, N. J.									**Listing No. 46**
Cold Work Dies	TECO TH, Carbide								
Cutting Tools Cast Iron, Nonferrous & Nonmetallic substances (Finishing, Precision Boring, Reasonable Intermittent Cutting, Roughing)	TECO A-1, Carbide								
Cutting Tools (Steels) (Finishing, Precision Boring)	TECO CF, Carbide								
Cutting Tools (Steels) (Heavy Duty & Intermittent Cutting)	TECO C-HD, Carbide								
Cutting Tools (Steels) (Roughing)	TECO TYPE C, Carbide								
UDDEHOLM CO. OF AMERICA, INC., 155 East 44th St., New York 17, N. Y.									**Listing No. 47**
Cold Work Dies (Coining, Swaging, Blanking, Cold Forming)	REGIN 711 Oil Hardening	C .50, Mn .20, Cr 1.15, W 2.50, V .20, Si .75	1900	1450	1440–1475	1250	1675–1725	400–650	Oil Mach. 85 Movement B
Cold Work Dies (Lamination, Trimming, Blanking, Cold Forming)	TRI-MO Air Hardening	C 1.50, Mn .30, Cr 12.00, Mo .80, V .20, Si .30	1925	1600	1550–1600	1200	1860	425–535	Air Mach. 60 Movement A
Cold Work Dies (Blanking, Cold Forming)	UHB Water Hardening	C 1.05, Mn .30, Si .25	2000	1450	1375–1410	1250	1425–1475	300–450	Water Movement B
Cold Work Dies (Blanking, Cold Forming)	UHB-46 Oil Hardening	C .90, Mn 1.10, Cr .50, W .50, V .10, Si .35	1950	1500	1440–1475	1250	1440–1490	350–450	Oil Mach. 100 Movement A
Die Casting Dies	REGIN 711	(Listed Above)							
Hot Work Dies (Hot Forming, Hot Punching, Shearing)	REGIN 711 Oil Hardening	(Listed Above)							
Plastic Molding Dies (Hubs)	REGIN 711	(Listed Above)							
Plastic Molding Dies (Hubbed Cavity Dies, Hobbed Cavity Dies)	UHB FORMA Water Hardening	C .04, Mn .06, Si .03	2500	1950	1650	1250	1450–1475	300–400	Water For Hobbing Movement B
Plastic Molding Dies. (Machine Cut Cavity Dies)	UHB-46	(Listed Above)							
Punching and Shearing	REGIN 711	(Listed Above)							
Shock Resisting (Intermittent and Repeated Impact)	REGIN 711	(Listed Above)							

Large Cemented Carbide Sections

Gain Wide Industrial Use



New manufacturing techniques and modified metal mixtures show material to be economically sound for many jobs in addition to tool tips. Weight limit per piece that can be produced commercially on present equipment is 100 to 120 pounds

By HARRY CRUMP
Manager of Tool Sales Engineering
Carboloy Co. Inc.
Detroit

WIDESPREAD use in recent years of cemented carbides for tool tips, running from only a few grams in weight for the average tip to some 4 ounces for a "large" tip, had a tendency for industry in general to regard the hard metal carbides as usable primarily in small sections or pieces. New manufacturing techniques and modified metal mixtures developed as a result of wartime production are currently counteracting this tendency.

Another factor which has contributed to the use of carbides in larger pieces is the recognition that carbides, being powder metals, have definite advantages over other types of metals for a number of uses. These advantages include not only ease of fabrication, high production rates and wider ranges of sizes and shapes but also inherent "use" characteristics which set carbides apart from other metals regardless of their process of manufacture. Cemented carbide die nibs ranging up to 13½-inches inside diameter and weighing 105 pounds are currently in use for drawing, forming, etc. in addition to other important non-tool and non-die uses.

Rolling Extremely Thin Sheet Steel — Rolls of solid cemented carbide are used for rolling extremely thin sheet. Each set includes two of these, backed up by several conventional steel rolls. Results have been described as excellent and the carbide rolls, each of which was fabricated in a single section, are running in production day after day without requiring maintenance.

Cemented carbide brick mold liners filled a long felt need for a lining material which could withstand the chewing and grinding action of such refractory and highly abrasive mate-

Fig. 1—Solid carbide lining is fitted into bearing holding depression to maintain tolerances of main bearings during long production runs

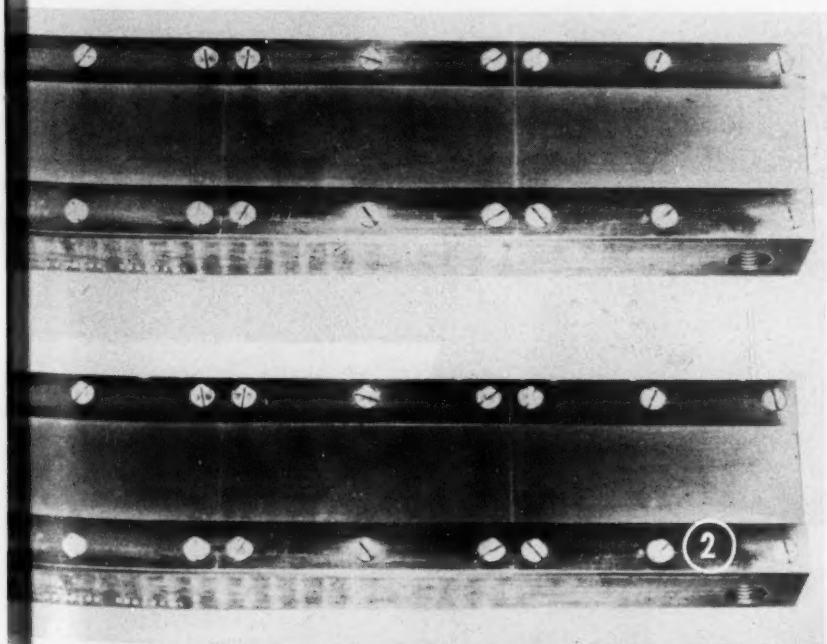
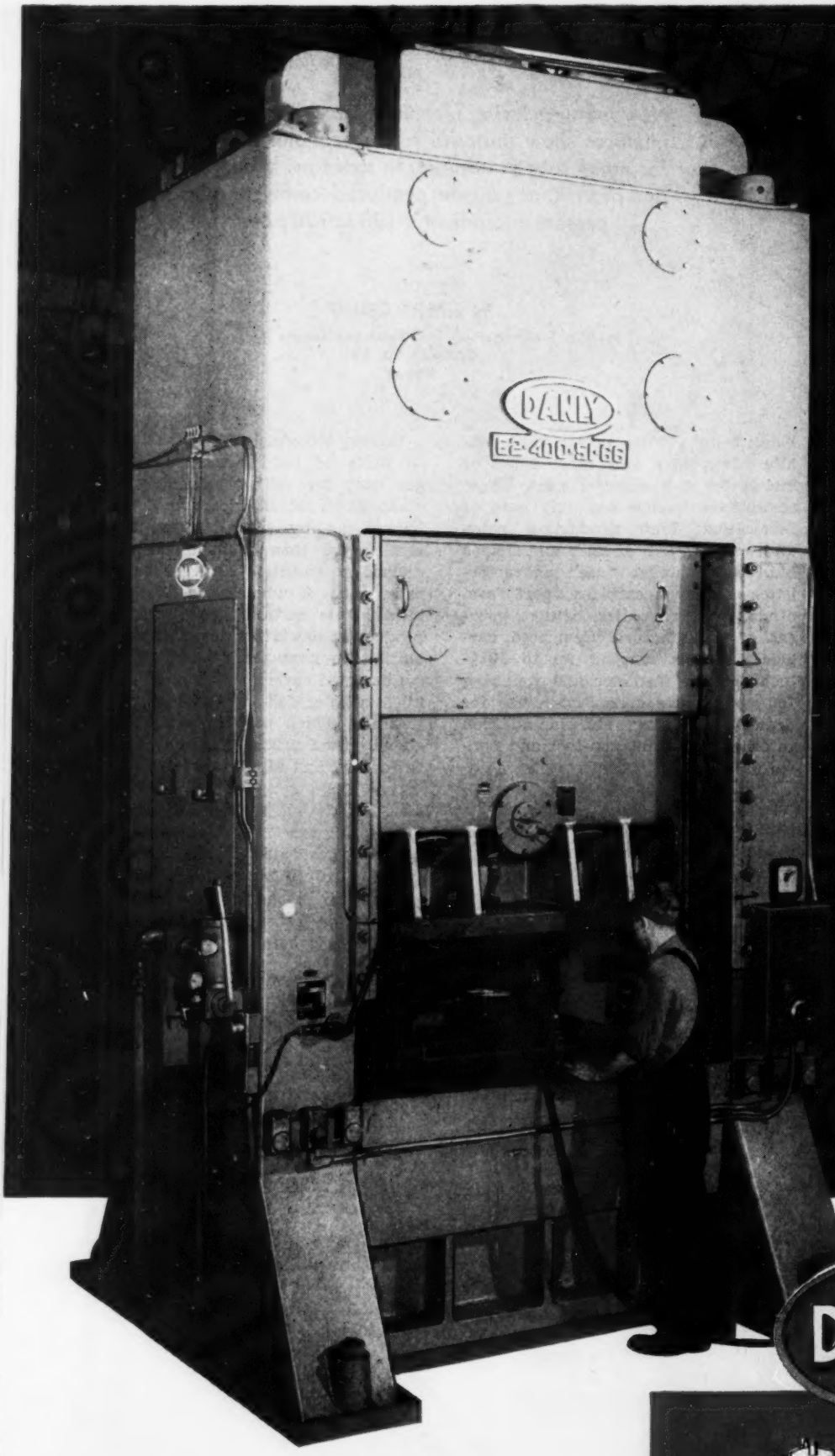


Fig. 2—Chilling and quench blocks used for tempering safety razor blades. Carbide sections are mechanically attached to cast iron or brass water cooling jackets

Fig. 3—Boring bar of solid Carboloy and tipped with carbide is used for precision boring of small, deep holes

HOW SIDE BARS FOR "Chabelco" DRIVE CHAIN



½" THICK SIDE BAR FOR "Chabelco" DRIVE CHAIN

REAR VIEW OF DANLY PRESS

7 TIME- AND COST-SAVING FEATURES OF DANLY PRESSES

DANLY

PRECISION DIE SETS . . . STANDARD AND SPECIAL

ARE PRODUCED *at a rate of* 1200 *per hour*

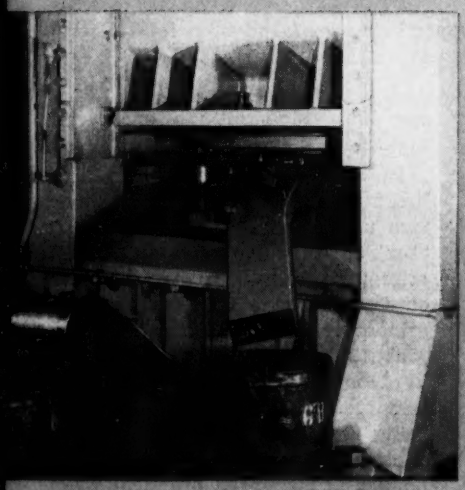
on a DANLY *400-Ton* STRAIGHT-SIDE PRESS

JOB DATA

Overall Size of Piece: 6¼" x 2⅛" x ½".

Stock: SAE 1335 Steel—½" thick, 2⅛" wide.

Operations: Pierce one 1 3/16" round hole and one straight-side hole 1 3/16" x ⅜", trim ends and sides.



(At left) Scrap is blown out of die through special shoot. Blanked pieces drop through cavity provided in bed of press. Power conveyor installed below bed discharges finished pieces in drum container.

One of nine Danly Presses at Chain Belt Co., Milwaukee, Wis., this 400-Ton, Straight-Side Unit speeds output of ½" thick side bars for "Chabelco" drive chain. A production rate of 1200 pieces per hour is attained with one operator at a press speed of 20 strokes per minute. The job is set up with a two-stage progressive die on a Danly Precision Die Set. Sixteen-foot lengths of ½" x 2⅛" SAE 1335 steel strips are fed by hand.

Tolerance of .003" held—Setup time reduced

The finished pieces are held to a tolerance of .003" on the hole centers. Accuracy of .010" is maintained around the blanked outline.

Setup time for this and other jobs is greatly reduced by reversible slide controls on the Danly Press. Because the press can be stopped at any point of its stroke *and quickly reversed* by push-buttons, die adjustments are made in a fraction of the time usually required.

Other important advantages

The Danly exclusive ventilated air friction clutch which contributes to flywheel energy, and the complete built-in circulating oil system are other important Danly features which help to further reduce press downtime, increase production, and cut costs.

- **New Ventilated Floating Disc Air Friction Clutch** increases flywheel energy—gives long, trouble-free service under severe operating conditions.
- **Built-In Automatic Filtered Oiling System** puts right amount of oil where needed—*including flywheel bearings.* Eliminates sludge—increases press life—conserves oil.
- **Sturdy All-Steel Welded Frame**—All weldments stress relieved before machining—insures accurate, permanent alignment.
- **Pitman Wrist-Pin Design**—Permits precision fitting of component parts, assures closer operating tolerances, promotes longer press life.
- **Air Pressure and Oil Pressure Safety Switches**—Safeguard press, prevent operation should pressures drop below safety point.
- **Safe, Convenient Electrical Controls**—Save time on die adjustments and add safety to trial strokes.
- **Balanced Flywheel, Balanced Clutch and Air Counterbalanced Slide**—Insure quiet, smooth-running performance.

WRITE FOR MORE FACTS

Write today for free bulletin describing Danly's new and exclusive press engineering features. Find out how Danly Presses can help you cut costs and increase production. For free engineering assistance, send details about your problems. You will receive specific recommendations without obligation.

DANLY MACHINE SPECIALTIES, INC.
2100 SOUTH 52ND AVENUE, CHICAGO 50, ILLINOIS

25 YEARS OF DEPENDABLE SERVICE TO THE STAMPING INDUSTRY

MECHANICAL PRESSES AND PRESS EQUIPMENT

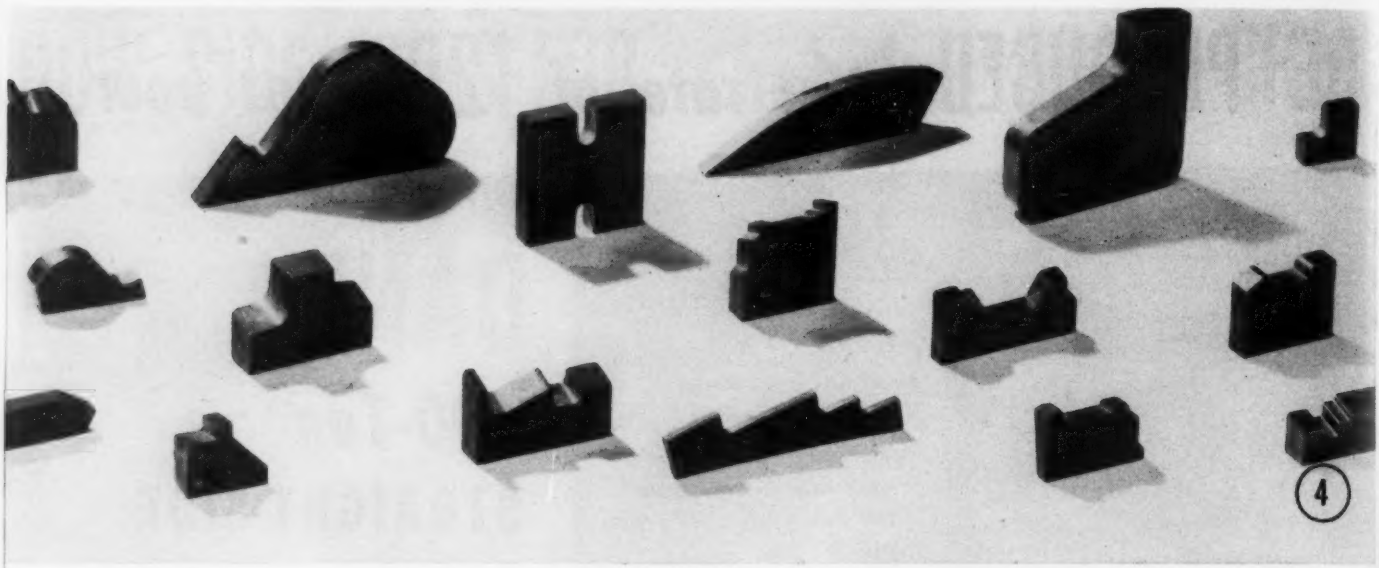


Fig. 4—Some of the variety of shapes being produced from cemented carbide

rials as alundum, magnesite and corundum in the manufacture of fire brick. There are four solid liners in each mold and four molds in a set. The two side pieces weigh about 12 pounds each and end sections about 5 pounds. Thus the cemented carbide used in each set totals 136 pounds.

In the brick making operation, the carbide slabs are slipped into place in the molds. Brick material, in paste form, is squeezed in from overhead and paste is pressed into final form by one stroke of a ram. Wear caused by abrasive action of refractory material is so severe that the liners used ordinarily produced between 8000 and 10,000 silica bricks before the liners had to be either replaced or reground. With cemented carbide liners, however, there is so little wear that finishing grinding lines are still visible on liners after a run of 42,000 bricks. This means a saving of approximately 4 days of production time since a change of liners in brick molds normally requires one full shift.

Broach Blocks and Broaches — In some automotive plants, main bearings are not only being broached with cemented carbide broaches but are also being held in place with steel blocks having a solid carbide lining fitted into the bearing holding depression where wear normally occurs, Fig. 1. These main bearings (of steel backed silver alloy) must be held to final shape and finish as they are broached. Radii must be held to a tolerance of 0.0001-inch.

Boring Bars—Taking advantage of carbide's unusual degree of stiffness, boring bars 3 13/32-inches long and 0.320-inches in diameter, Fig. 3, have been used in the automotive industry for precision boring of small, deep holes. The hard metal carbides possess a modulus of elasticity of 73 million pounds per square inch and up (according to grade), making it possible to precision bore deeper and smaller holes inasmuch as stiffness of the bars can be used to keep the long tool from backing away from work or winding up in the hole.

Job on which these boring bars were used was the semifinish and finish boring of valve guides for automobile engines. Guides were of cast iron with a brinell hardness from 160 to 200 and with a bore 0.345-inch in diameter. Valve guides were semifinish bored on the "in pass" of the tool and finish bored on the "out pass". The holes thus bored were straight, round, concentric and to a tolerance of 0.0002-inch.

Chilling and Quench Rolls—Blocks of solid cemented carbide, 1 11/16-inches wide by 3/16-inch thick with three blocks placed end to end for a total length of 13 inches, are used for tempering safety razor blades. They are mechanically attached to cast iron or brass water cooling jackets, as shown in Fig. 2. As the heated razor blade stock passes between them, two sets of water cooled blocks are pressed together and blades are tempered by contact with the cold carbide. In addition, blocks prevent the thin steel stock from wrinkling and warping while blades are being tempered.

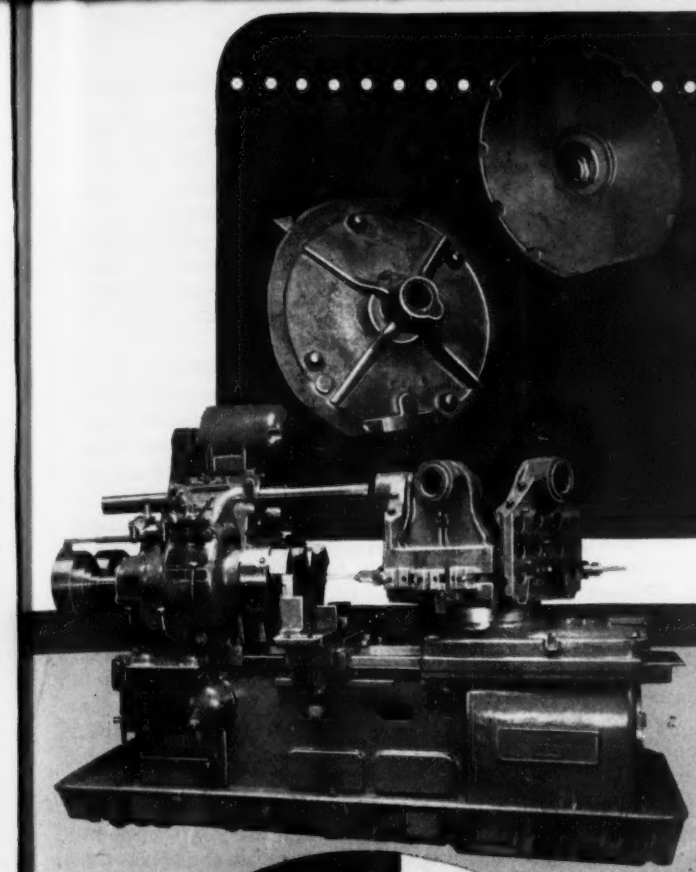
Scratching and wear of the blocks used originally resulted in poor contact at the worn places with improper tempering of the blades. The carbide blocks eliminated this trouble, reduced scrap and removed the need for continually renewing quench blocks. Another advantage is that the new blocks cannot become either annealed or softened under high temperatures encountered and retain their hardness.

In addition to the few examples listed there are others such as slitters used for cutting sheet steel for "tin" cans, double seaming rolls for crimping or rolling over the bead on tops of pails or cans, centerless grinder rests and a variety of other jobs that utilize large sections of hard metal carbides. Fig. 4, gives some idea of the variety of shapes being regularly turned out on a production basis. As to size, 100 to 120 pounds is about the practical weight limit per carbide piece that can be commercially produced on present equipment. Solid carbide parts are being produced up to 18 inches outside diameter with a maximum top area of approximately 100 square inches. Maximum height of such large carbide sections is usually around 8 inches.

Bowed "E" Rings Aid In Positioning Gears

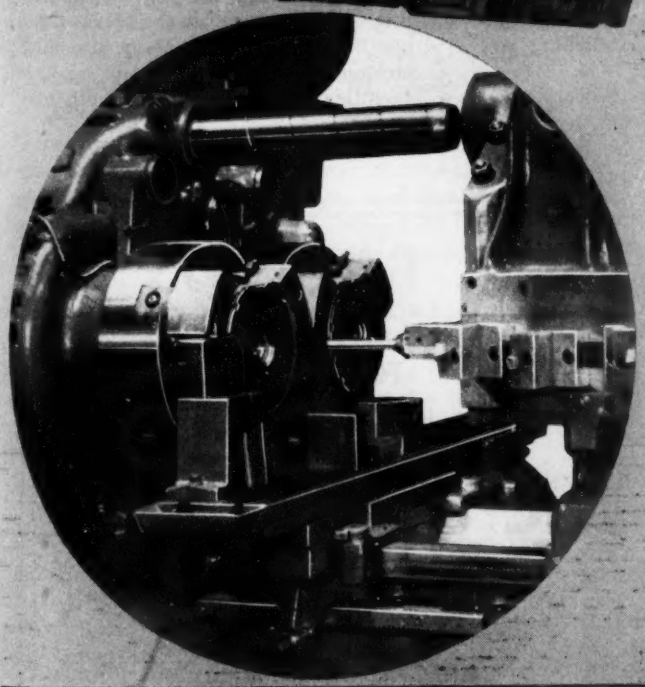
Development of a bow-shaped E ring to hold the gears and spacers in counter gear assemblies of business machines has been announced by Waldes Kohinoor Inc., Long Island City, N. Y.

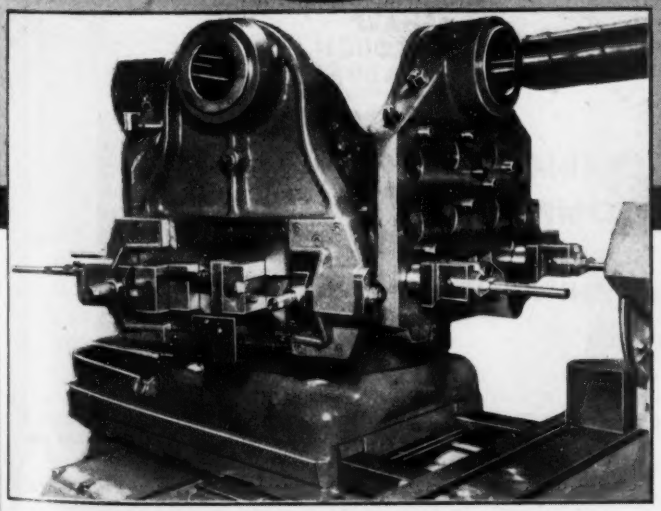
Previous to this development, gears and spacers were positioned between two conventional, flat retaining rings in grooves on the shaft. Overall dimensions of the assembled parts varied due to existing tolerances, with resultant excessive end-play or gear binding. The new E-ring, used on one end of the shaft, takes up end-play and provides enough "give" to permit the gears to turn freely.



. . . . . this is like shaving costs with an AX!

Here is a cast iron casing cover. On the P. & J. 5D2-15 AUTOMATIC TURRET LATHE these pieces are machined *TWO AT A TIME* in 4.37 minutes, floor to floor!





News of this outstanding performance should be channeled to all management interested in production machining. Equipped with two spindles, a full range cross slide taking in both spindles, and a turret of a diameter sufficient to accommodate *double tooling on each face*, the 5D2-15 machines 21.8 covers per hour per machine. When you consider that the production of the 5D2-15 AUTOMATIC TURRET LATHE is only very little less than the best obtainable from two separate machine units, particularly when air chucks are employed for holding the work; and when you consider that one operator can effectively handle more than one 5D2-15 unit, it requires little imagination to picture reduced costs. In a complete cycle, during which *two casing covers* are machined, three speeds are used: 159, 302 and 525 rpm.; and three feeds: .007", .016" and .021" per spindle revolution. This is possible because the 5D2-15 is equipped with four automatic changes of speed, and three automatic changes of feed. In machining the casing cover, full use is made of this range. All five turret faces are used, as follows: 1st TF—rough bore 1.181", 1.874", 3.009" dia. face shoulder. 2nd TF—rough face front side divided cut (slide tool.) 3rd TF—finish bore 1.181", 1.874", 1-5/16" dia. form bevel; machine 3.009" dia. 4th TF—finish face front side; machine groove in bore (slide tool). 5th TF—ream 1.181", 1.875", 3.009" dia. The two spindle feature of the three models (5D2-9, 5D2-12 and 5D2-15) offers these distinct advantages: (1) saving in first cost, as compared with two single spindle units; (2) reduced power factor; (3) greater production of all work classifications not requiring too frequent change overs, and whose swing comes within the machine's scope. Send us a part or a blueprint, and we will show you how the 5D2-15 will machine it at lower cost.

POTTER & JOHNSTON CO.
PAWTUCKET, RHODE ISLAND
Subsidiary of
PRATT & WHITNEY
Division Niles-Bement-Pond Company

Better Materials Handling Methods

To Be Demonstrated by the Navy

EXHIBITS demonstrating how some of the most pressing materials handling problems faced by the armed services and private industry may be overcome will feature the materials handling and packaging demonstrations at Bayonne, N. J., Sept. 28. To be held by the Bureau of Supplies & Accounts and the Navy Industrial Association, the show and conference will deal with those problems previously discussed with the Materials Handling and Packaging Advisory Committees of NIA.

As a solution to the problem that nonstandard boxcar designs are causing monetary loss to manufacturers, shippers and the ultimate consumer, an exhibit in three parts has been prepared. The first part is a mock-up of the side of a boxcar with an adjustable door to illustrate the difficulties encountered when running pallet loads through different widths of less than eight feet. Part two of the exhibit will comprise actual boxcars of the latest design. The third part will show mechanized loading with palletized cargo.

In the ship-loading displays, ideal methods of mechanical loading will be shown with models and photographs illustrating advantages of side ports for deep-sea cargo ships and square holds approaching warehouse design.

Standardization of controls and capacity ratings of self-powered materials handling equipment is being sought to eliminate confusion when operators change equipment; toward this end an exhibit will show a dummy set of fork truck controls which the Navy feels most closely parallels the acceptable standards of the automotive industry.

Other recent developments in lift truck equipment will include demonstrations of carbon monoxide eliminating mufflers and of non-skid tires.

A pallet size standardization exhibit will show the design features of pallets meeting Navy requirements and desirable features of a standard pallet 40 x 48 inches for use both in railroad cars and in trucks. In another exhibit the possibility of developing unit loads without pallets is explored, with various types of materials thus formed into a load being displayed. Anchoring methods and various types of packages, including that for a jet engine, will be shown.

A tour during the conference will include warehouses at the Naval Supply Depot where the Navy standard storage plan is used, ship loading facilities and ships of the "moth ball fleet."

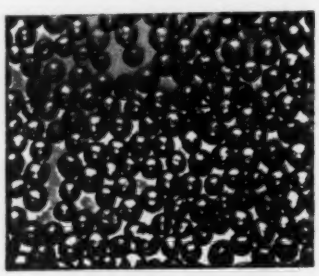
ACCEPTED
BY AMERICA'S LARGEST INDUSTRIAL PLANTS TO DO THE TOUGHEST BLASTING AND PEENING OPERATIONS

HI-GRADE METALLIC

FAMOUS
FOR ITS ABILITY TO STAND UP UNDER REPEATED HARD USE

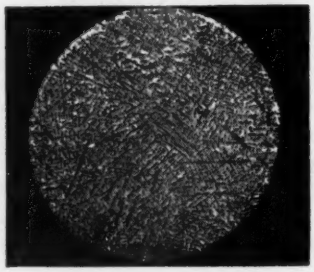
SHOT
- ROUND
- UNIFORM IN SIZE
- UNIFORM IN HARDNESS
- LACKS IRREGULAR SHAPES

GRIT
- RECTANGULAR
- SHARP
- TOUGH
- DURABLE



UNRETOUCHED PHOTO OF HI-GRADE SHOT

CLAYTON-SHERMAN ABRASIVES COMPANY
3896 LONYO ROAD
DETROIT 10, MICHIGAN
CEdar 7200



MICROSCOPIC STRUCTURE OF METAL

Memo from our RAW MATERIALS DEPT.

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION
OFFICE MEMORANDUM

DATE 8/11/48

TO Metallurgical Dep't.

SUBJECT: Performance of Heat Treated JALLOY Steel at Benson Mines, Star Lake, N. Y.

1" x 6" heat-treated JALLOY #3 flats to reinforce truck-body bottoms and doors. Service--severe impact loading of hard rock magnetite ore from 5-yd. shovel. Year round operations in temperatures to minus 47°F. Severe abrasion in unloading. Installations have been in service 13 months --305,000 tons handled per truck. Units equipped with these flats maintain bottom flatness and clean readily. Insignificant wear at this date indicates at least 2 years life before replacement is necessary.

WHAT better "laboratory" could we find to prove the qualities of J&L Steel than in the equipment required in our own operations?

The handling and moving of heavy, abrasive ore-bearing rock, at our Benson Mines, is a rugged test for any equipment. Yet our stone trucks equipped with heat-treated J&L JALLOY Steel reinforcing strips have run *more than a year* without bottom replacements. *And recent reports indicate at least two years life!*

These JALLOY strips receive the full impact of huge rocks *dropped* into the truck bodies, and withstand the abrasion caused by dumping load after load. This continuous resistance to shock is particularly noteworthy because of the embrittling effect of the sub-zero temperatures encountered during winter months.

J&L JALLOY is a fine-grain, heat-treated steel made in a wide range of physical properties with tensile strengths of 155,000 to 180,000 lbs. per sq. inch. Its inherent ability to withstand shock and abrasion adds life to equipment that must be tough and strong—such as: Rock crushers, Scrapers, Bulldozers, Dump cars, Power-shovel buckets, Truck bodies, Sandblasting equipment—or wherever abrasion and impact are limiting factors.

Manufacturers of trucks and trailers designed for heavy service will find JALLOY an excellent material for body bottoms, reinforcing strips exposed to severe abrasion, tail gates and many other applications. You'll find that JALLOY is a steel that stands up when the going gets tough. For more complete information, let us send you the booklet: "*Jalloy*—J&L *Alloy Steel*." It includes data on properties, heat treatments and workability. The coupon at the right is for your convenience.

Jones & Laughlin Steel Corporation
404 Jones & Laughlin Building
Pittsburgh 19, Pennsylvania

Please send me your booklet: "Jalloy—J&L Alloy Steel"

Name_____ Title_____

Address_____

JONES & LAUGHLIN STEEL CORPORATION

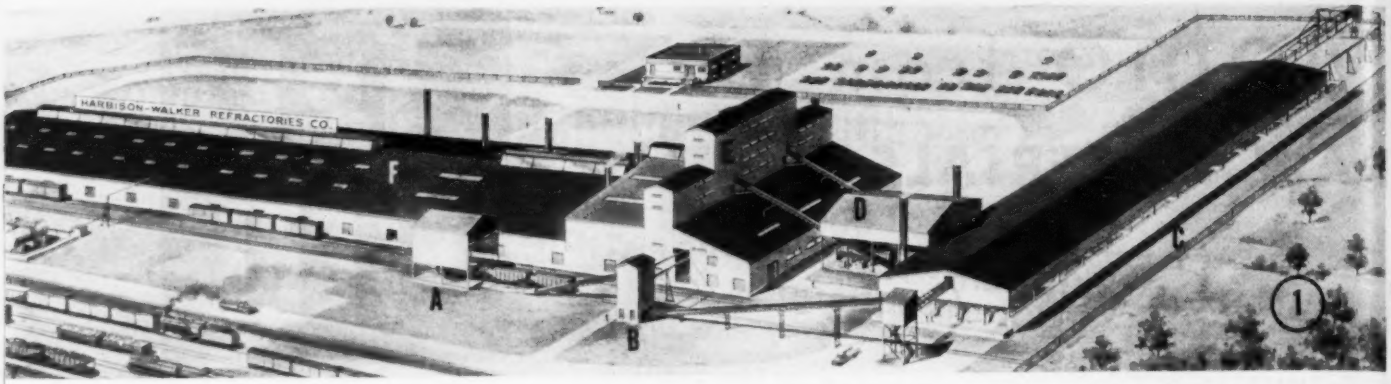
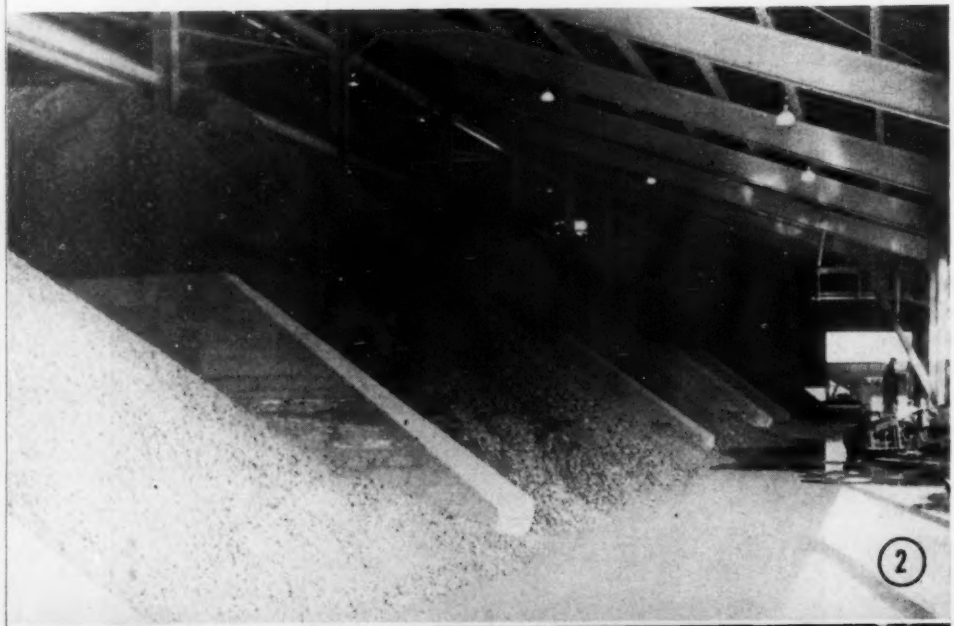


Fig. 1—Harbison-Walker's new streamlined basic refractory plant at Baltimore. Ore is unloaded and crushed at "A", recrushed at "B", conveyed to storage building "C", dried in building "D" and conveyed to building "E" for grinding, storage and batching. Mixers, presses and drying kilns are in right end of building "F". Tunnel kiln is located at far side and balance of building is used for cooling, storage and to house press shop for making steel cases for some types of brick

New Plant for Manufacturing

BASIC REFRACTORIES

. . . features latest developments in quality control and mechanization



CLOSE control over quality of product and highly mechanized handling and processing methods are utilized to their fullest extent in the Harbison-Walker Refractories Co.'s newest plant at Baltimore.

The plant went into initial production of basic refractory brick last November and capacity will be increased further as soon as a twin to the present tunnel kiln is completed. Bulk of production goes to the steel industry for use in basic open hearth furnaces, other important consumers including smelters of nonferrous metals, glass manufacturers and operators of rotary kilns. The company now has 24 plants, including one nearing completion at Fulton, Mo., for the production of fire clay and high alumina refractories.

The Baltimore plant processes three types of basic refractory ma-

Fig. 2—Overhead belt conveyor drops magnesite, chrome or olivine refractory materials into any one of 30 bins. Materials are carefully segregated

Fig. 3—Shown here is part of the grinding department where ore is further reduced. After grinding, material is hoisted to screening room for separation into four size groups. It then is stored in bins prior to weighing into batches

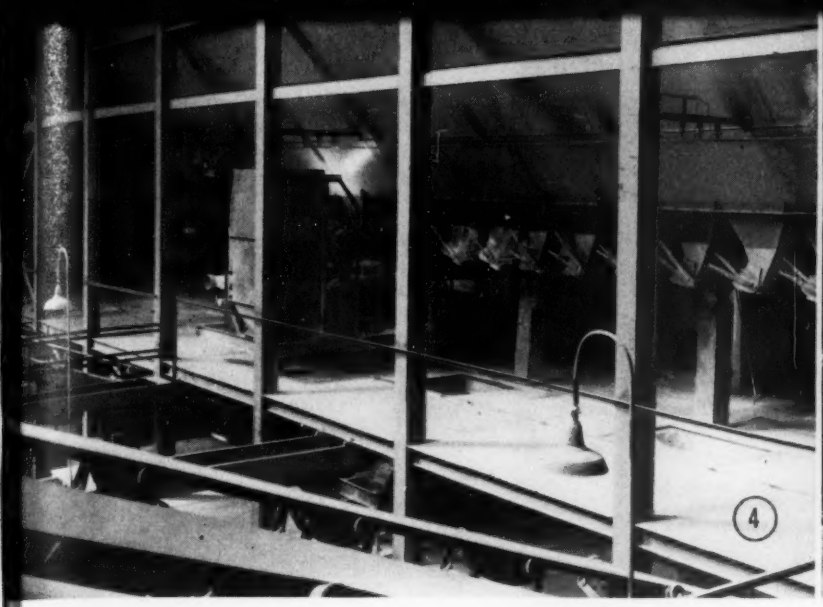


Fig. 4—Larry car operator weighs out given amounts of each material for a batch which is dropped into a chute and conveyed to the mixers on the belts shown in the foreground

Fig. 5—This toggle press forms four bricks with each stroke which are loaded directly on kiln cars for firing

terials—magnesite, chrome ore and olivine. A large part of the magnesite comes from natural magnesite rock produced by a partially owned subsidiary, the Northwest Magnesite Co. at Chewelah, Wash., and the balance from a seawater magnesia plant at Cape May, N. J. The chrome ore is imported from the Philippines, South Africa, Turkey and Greece, and the olivine is mined in North Carolina and Washington.

All ore is delivered in hopper bottom cars and dropped directly onto an apron feeder which provides a steady flow of material into a primary 13-inch gyratory crusher some 30 feet below track level. A large shakeout clamped to the top of the car shakes the entire car and removes even a load of wet ore in about 15 minutes.

Ore from the primary crusher is elevated by rubber belt conveyor to a secondary 36-inch gyratory crusher housed in the building which may be seen in Fig. 1, center.

As the ore leaves the secondary crusher building, it is elevated by rubber belt conveyor to a horizontal belt conveyor which serves the ore storage building (Fig. 2). Ore from this conveyor may be dropped into any one of number of bins by means of a conveyor belt tripper mounted on girder rails running the length of the building. The bins or compartments handle over 30 types of materials. The storage of crushed ore, incidentally, is a new feature and is advantageous in that it lessens the segregation of fines and lumps. Tramp iron is removed by a conveyor magnet before it reaches the storage building.

As ore is needed for processing it is picked up in scoop trucks and dropped on conveyors, wet ore being fed through a pair of rotary dryers, then conveyed into crushed ore bins in the next building for grinding. Dry ore by-passes the dryers and goes directly to the grinding department.

Up to the final blending at the batching or larry car, there is a clean separation of all equipment beginning at the storage building, so as to provide separate flow lines for the three materials handled and thus prevent contamination. For this reason, in the processing building, there are three dry pan grinders, three ball grinders, six separate dust collector systems and, of course, three separate sets of storage bins. The ball mills are fitted with electric "ears" which regulate the flow of material into the mills.

The dry pans (Fig. 3) reduce the ore to grains ¼-inch or less in size. However, it is also necessary to have some very fine powder and this is produced in the ball mills. All material is screened and stored by size groups in over 100 storage bins. These bins are fitted with baffles, of which the largest section is 3 feet square for the purpose of preventing segregation of sizes.

It may be pointed out that Harbison-Walker finds grain sizing is exceedingly important in making refractories of uniform quality and to meet service requirements. For some types of refractory brick, for example, it is desirable to mix small and larger sizes and for others to used only coarse grain fractions. Ordinarily, four screen brackets are

Fig. 6—Load of chemically bonded brick being pushed into drying oven. Harbison-Walker uses both gas-electric and battery powered trucks

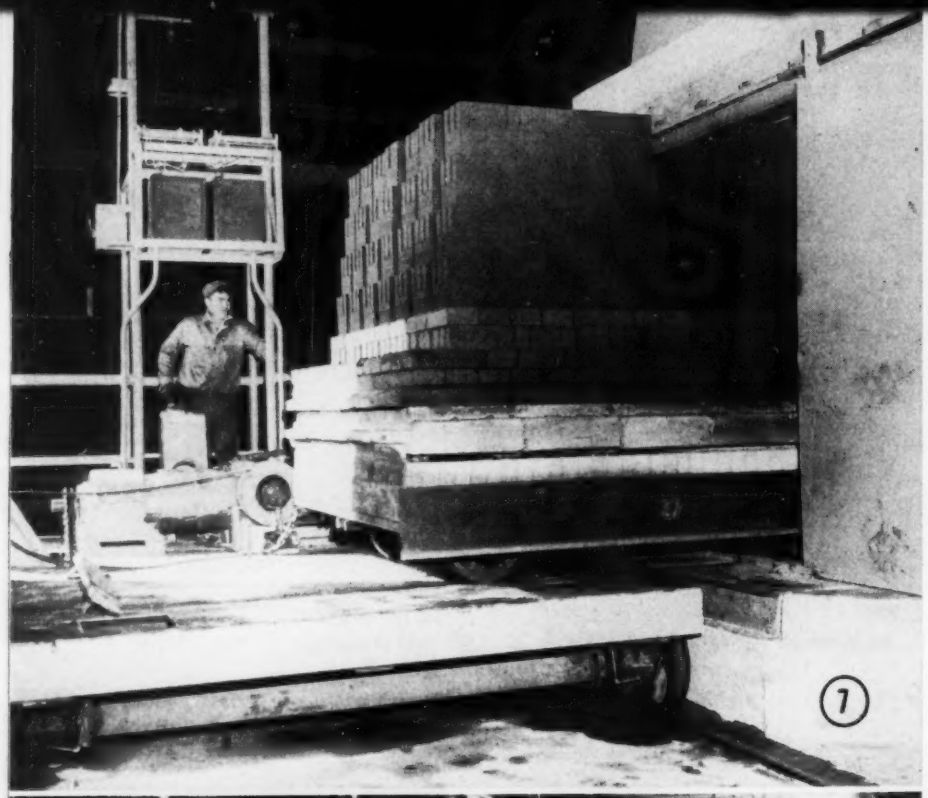


Fig. 7—Exit end of 324-foot tunnel kiln showing car being pulled onto transfer car which will spot it on track shown in Fig. 8

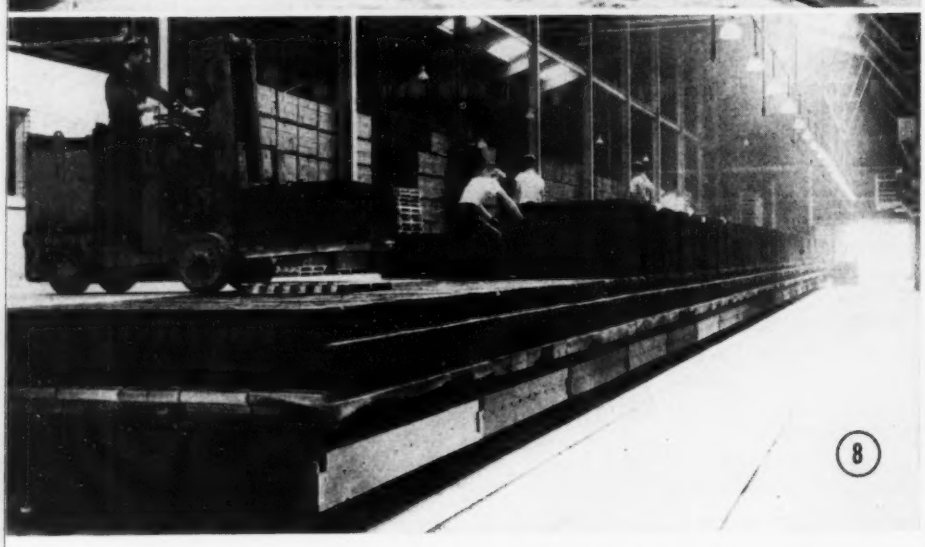


Fig. 8—After cooling, kiln-fired brick are loaded on pallets for transfer to freight cars or to the storage area in left background

used: Coarse (on 10 mesh), coarse-intermediate (pass 10 on 28), intermediate (pass 28 on 65) and fine (pass 65 mesh).

Inasmuch as these four size groups are segregated in bins it is possible to weigh out given amounts of each for blending various types of refractories and thus maintain standard screen analyses. Check analyses are made at various stages of the brick-making process as a quality control measure.

The storage bins (Fig. 4) all have gates at the bottom for removal of material and batching is accomplished by a pair of self-powered larry scale cars. The operators are given cards specifying the formula for each batch. Some formulas require drawing material from as many as a dozen bins. Each car has its own dust collector.

Batches are delivered by conveyor belts to a group of nine 20 cu ft mixers where water and bonding materials are added. Mixed batches then are fed automatically by conveyor belt to a series of mechanical and hydraulic brick making presses.

Harbison-Walker makes two types of basic brick, one of which is chemically-bonded and kiln dried at about 250° F, and the other which is fired in a tunnel kiln, including several brands, up to 3000° F. In the first group are a magnesite-chrome brick, a steel-encased magnesite-chrome brick and a chrome-magnesite brick. In the latter group are straight magnesite, chrome, olivine (forsterite) and chrome-magnesite brick.

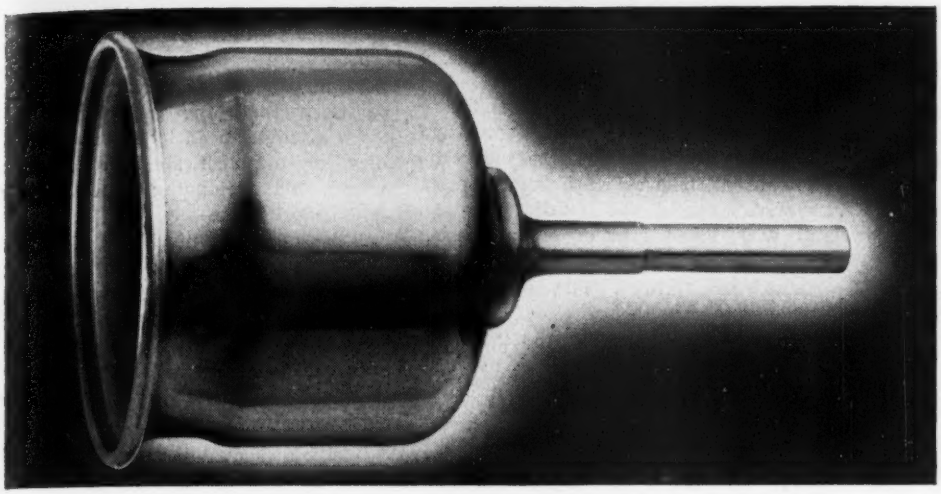
Chemically bonded bricks are placed by the press operators directly on metal pallets which are taken by fork lift truck to the dryer cars and pushed into the dryers, as shown in Fig. 6. The dryers are of hollow wall construction, making it possible to recirculate heated air exhausted from the tunnel kiln. After the brick are dried, they are moved on the metal pallets either to freight cars for shipment or to storage. If the customer requests palletized shipments, the brick are transferred to wooden pallets.

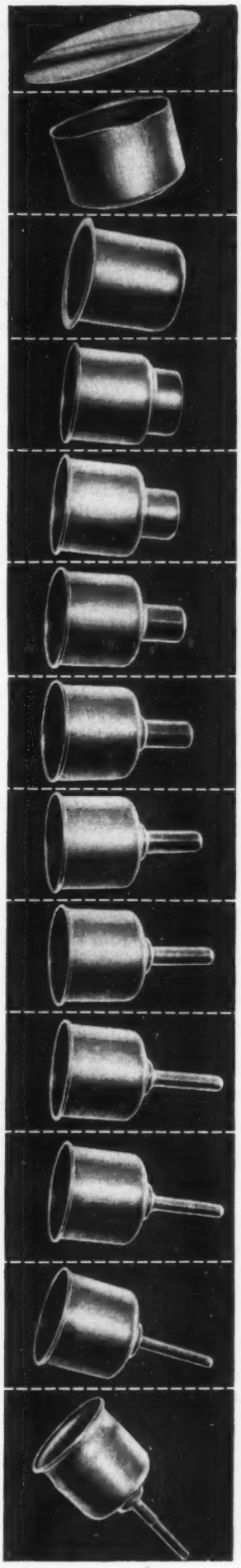
Brick scheduled for firing are placed directly on tunnel kiln cars (Fig. 5) by press operators. This is an innovation in the industry which results in reduced breakage and a saving in time.

The oil-fired tunnel kiln is 324 feet long, has a cross-sectional area of 8 x 9 feet and holds 32 kiln cars. The kiln was designed so that firing and recirculation of air bring the brick up to maximum temperature near the center of the furnace with subsequent cooling as the cars reach the exit end. At the same time, undercar temperatures are held to a minimum, due in part to double seals on each side of the cars, in addition to the usual sand seals. Automatic draft and temperature controls are used on both the kiln and dryers. Harbison-Walker engineers find that kiln burners can be regulated manually but time-temperature charts are kept by recording instruments.

The time cycle is set up so that a car loaded with 1800 brick emerges from the furnace (Fig. 7) every 3 hours. As each car emerges, of course, a load of newly pressed brick is loaded with a car pusher into the entrance end of the kiln. As also shown in Fig. 7, cars are switched by means of a transfer car to a track adjacent to the storage and shipping area for final cooling, as shown in Fig. 8.

One of the outstanding features of the plant is its excellent house-keeping. In addition to an elaborate system of dust collectors which segregate each of the three types of material and return it to processing, a cleaning detail removes all dirt and trash each day. The plant also has its own sheet metal fabricating shop which turns out the cases for metal enclosed brick. About 400 tons of 16 gage hot-rolled sheets are required monthly.





How deep can you draw Aluminum?

This upper bowl of a commercial vacuum coffee maker started as a 14½-inch circle of Kaiser Aluminum. In 12 progressive stages it was drawn to a 6⅝-inch bowl with a tubular stem ¾-inch in diameter and 6⅜ inches long. A total reduction from circle to stem of approximately 95%—*without a single anneal!*

Lower fabricating costs!

Because of Kaiser Aluminum's excellent quality and workability, extra steps are saved, and handling and fabricating costs are reduced. Scrap loss is cut. Tooling setup costs are low. And with aluminum, plating is unnecessary because a bright, lasting finish can be obtained by buffing.

The result is a low-cost product that can't rust, chip or break. And that can't be matched for sales appeal!

What does this mean to you?

It means that with Kaiser Aluminum you have a quality metal capable of meeting the toughest manufacturing requirements. A *versatile* metal that combines strength, durability, lightness, workability, and that can never rust.

It means, too, that you can have the services of thoroughly experienced engineers, expert in selecting the right alloy for the most complex job, and capable of assisting in your most difficult fabricating problems. May we tell you more?

For another dependable source . . . choose

Kaiser Aluminum

product of Permanente Metals Corp.

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tends to dull the cutting tools and may interfere with fine machining operations. On forgings such as connecting rods and crankshafts, scale would tend to contaminate the oil and be carried into bearings and other moving parts to cause rapid wear and motor damage. On forgings that are to be painted or coated with a rust preventative, scale would interfere with adhesion of the paint or rusticide to the surface of the forging.

For most uses, it is desirable to remove the scale. On some forgings, such as forged pipe fittings and flanges, where such parts are exposed to weather conditions, some users prefer to keep the scale on the forgings in the belief that the scale tends to retard normal corrosion or rusting. Whether the forging scale actually does retard rusting under weather conditions is not known, since there appear to be no actual data to substantiate such claims or to disprove them.

Tumbling—Cleaning of forgings to remove the scale may be done by one of three general methods. They are tumbling, blast cleaning or pickling. The oldest of the three methods, as well as the simplest, is that of tumbling. The operation consists of placing the work to be cleaned in a barrel together with some loose abrasive material such as coarse sand and with some bits of small loose metal. Loose metal is usually called "jacks" or "stars". The barrel is tilted at an angle of about 15 or 20 degrees and is rotated at a moderately slow speed. Contents of the barrel rolls over itself and this action removes the scale from the forgings.

Action of the work and the jacks rolling over themselves tends to have a slight peening action on the surface of the work. This is supposed to help remove some of the working strains in the parts being tumbled. Tumbling is not desirable on parts where there is a possibility of damaging corners or dulling sharp edges on the work. The tumbling method of cleaning scale from forgings is the least used method in the modern forging plant today. Tumbling imparts a sort of shiny gray color to the forgings, with corners and high points being shiny.

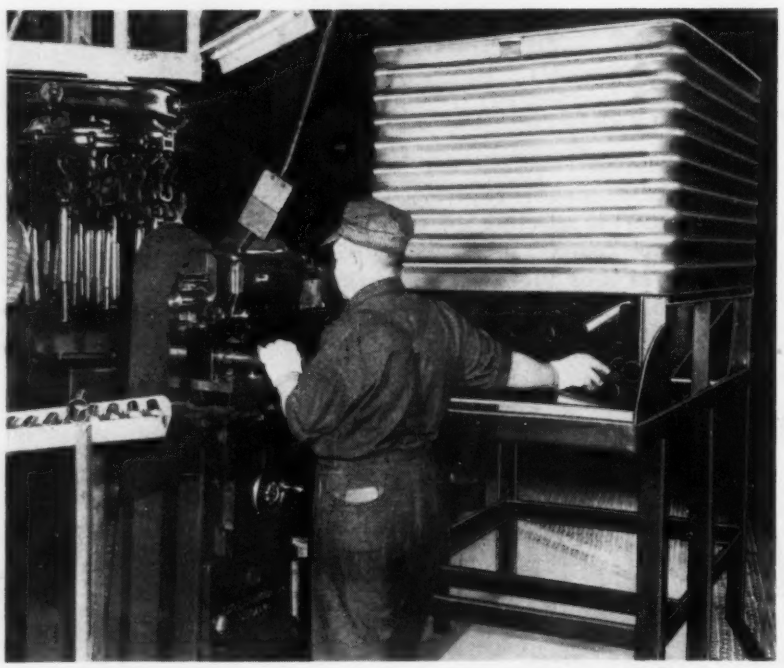
Blast Cleaning—Blast cleaning of forgings to remove scale may be performed either by sandblasting or by shotblasting. Blast cleaning operations are performed either by sandblasting where sand grit is propelled against the surface of the work at high speed by high air pressure, or by steel shot propelled in airless blast cleaning machines by centrifugal force.

Blast cleaning machines, Figs. 62 and 63, vary in styles and sizes, but they can be divided into two general classes, the barrel type in which forgings are placed in a closed barrel, and the table type where forgings too large for the barrel type are cleaned. In the closed barrel type, the barrel moves around to develop the blasting action. The rotating movement tends to impart a very slight peening action to the corners of the forgings. Blast cleaning imparts a very pleasing matte gray color to the surface of the forgings. The cleaned surface permits easy inspection of the forging surfaces for possible defects such as cold shuts and cracks. Blast cleaning of forgings is more widely used than any of the other cleaning methods.

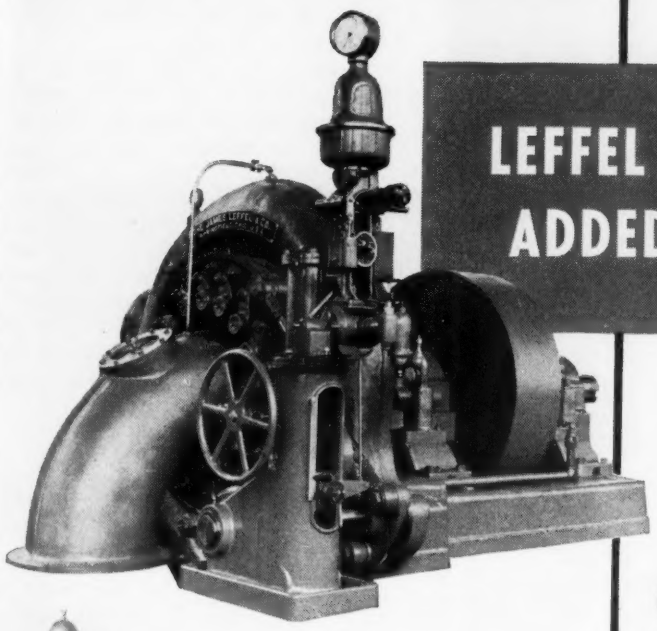
Pickling—Pickling to remove scale is used to a considerable degree. Pickling is a chemical process in which the scale is loosened and removed from the forgings by the action of the acid pickling solution. Formerly, the acid solution would attack the steel just below the inner surface of the scale to eat away a thin layer of sound metal to loosen the scale. Today, however, suitable inhibitors are used, which put a protective coating on the sound metal itself so that the acid pickling solution can work on the scale itself to loosen it.

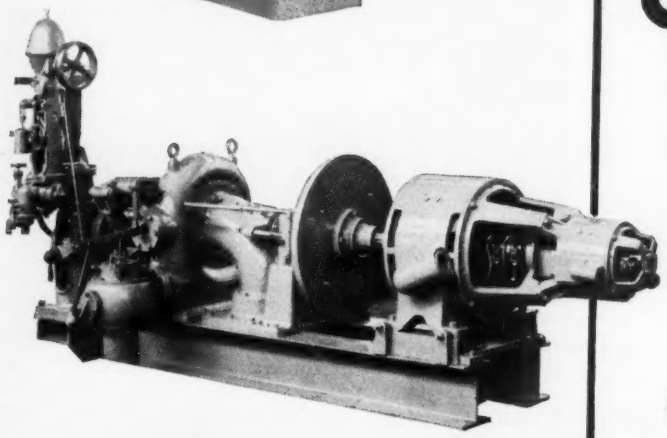
Most commonly used acid solution for pickling steel forgings is a solution of sulphuric acid mixed with water. The solution contains about 10 to 15 per cent concentrated sulphuric acid. Where the pickling method is used for cleaning forgings, it is important to provide a separate building for this work, and to make suitable provisions to remove acid fumes so that there is no danger to the operator. Proper temperatures of solutions must be maintained, and the solution should be checked regularly for strength.

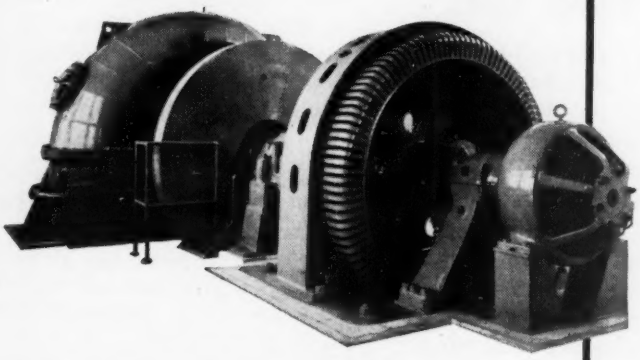
Time required to pickle the forgings depends upon the nature of the scale, shape and size of forgings and upon composition of the metal in the forgings. Some types of scale disintegrate more readily than do others. Usual time for pickling runs is from 10 to 50 minutes for each batch. After the pickling operation, the forgings are dipped in a caustic solution to neutralize the acid and then washed in clean hot water to



BUDGET REDUCER: Savings of 22 per cent in stamping of dust shields used in production of hydraulic shock absorbers at Monroe Auto Equipment Co., Monroe, Mich., were made possible with a drop bottom skid box which feeds parts to operator by gravity. Box is placed on a working height stand by a lift truck. Operator gets parts from box, performs operation and feeds them into a chute for final assembly







Hydraulic water turbines manufactured by The James Leffel & Company, Springfield, Ohio, requiring flywheels, are equipped with steel plate flywheels. By-Products Steel Co. is prepared to furnish flame-cut discs as thick as 25″, or as large as 195″; normalized, if desired.

LEFFEL TURBINES HAVE THE ADDED DEPENDABILITY OF

Steel Plate Flywheels

They are strong, sound and dependable; products of Lukens steel plate. Rim speeds as high as 400 feet per second are permissible.

By-Products Steel Co. supplies flame-cut discs ready for finish-machining and balancing. Pieces trimmed from the plate are held at the Lukens mill where their scrap value is highest. The fabricator has no handling or shipping charges on that scrap.

Delivery of such semi-finished products to your plant may enable you to boost production without a corresponding increase in man-power and machinery. By-Products Steel has over 150 major machines for flame-cutting, shearing, pressing, blanking, bending or otherwise forming plate. Shapes can be made to your specifications from any thickness of plate and in the widest widths available anywhere.

Bulletin No. 270 shows typical work done by us. For a copy, or for a quotation on your requirements, write By-Products Steel Co., Division of Lukens Steel Company, 414 Strode Avenue, Coatesville, Pennsylvania.

Visit us at the Shows!

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The National Chemical Exposition
Chicago Coliseum
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National Metal Exposition
Convention Hall, Philadelphia
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LUKENS
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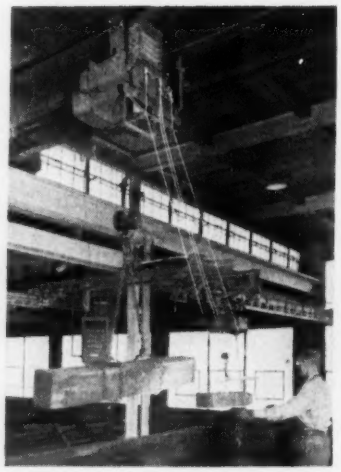
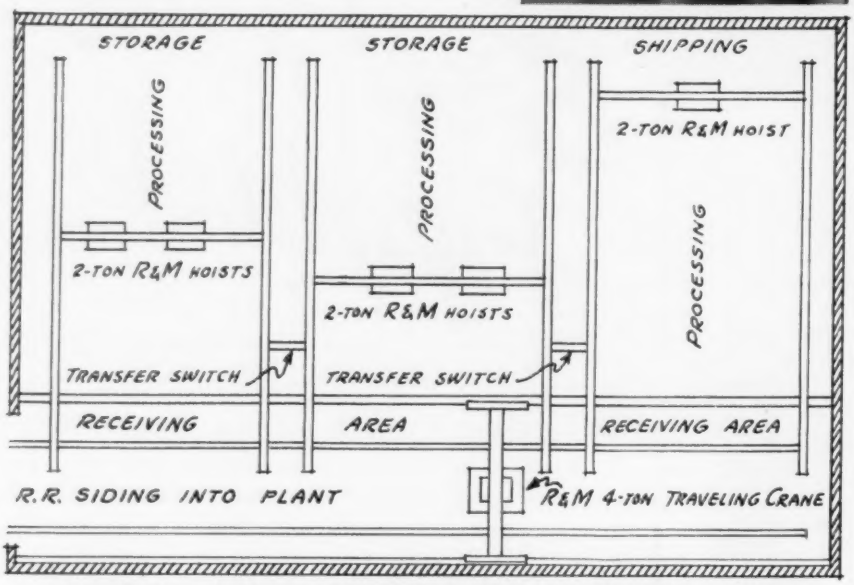
STEEL PLATE SHAPES

FLAME-CUT ★ SHEARED ★ PRESSED ★ BENT ★ BLANKED ★ WELDED

HOW R & M HOISTS PAY OFF!





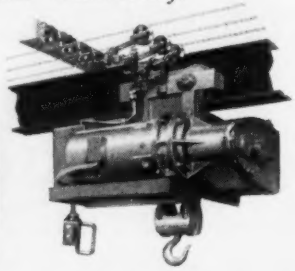
OVERHEAD SYSTEM BRINGS DOWN OVERHEAD COSTS

Tie your materials, machines and men into a neat *profit* package—with R & M electric hoists. Here's what they're doing for Great Lakes steel processing plant. At receiving dock, no demurrage charges. In storage, less rehandling. Fewer interruptions on the processing lines, less down-time on expensive machines. Easier work, too, throughout the plant. Result: lower production costs, *more profits.*

R & M'S DO *ALL* THE LIFTING HERE . . . One man, with 4-ton traveling crane, unloads steel from gondolas into receiving area. From there, five 2-ton trolley hoists on traveling bridges serve storage, processing lines and shipping. Hoists can be switched from one bridge to another as requirements vary; operators need no special skill or training. Savings in handling costs have been substantial. Congestion reduced to a minimum . . . manpower utilized to best advantage . . . operations set for *peak efficiency.*

KEEP COSTS DOWN—PROFITS UP . . . Plug leaks in *your* profits, streamline *your* materials movement. An R & M specialist will gladly analyze, make recommendations. So "Take it UP with R & M." Hoists and cranes in types and sizes for every purpose. Write *today.*

Type F1—Capacity: 1000-4000 lbs.
Others from 250-20,000 lbs.



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nnish cleaning. Forgings that have been cleaned by pickling have a dark blue-gray color.

Brass and bronze forgings are usually cleaned by special pickling solutions which remove the scale and impart the natural brass or bronze color to the forgings. A pickling solution is used to remove the scale from the brass or bronze surface; this is followed by washing the solution from the forgings. A second solution, called the bright pickle, is used to impart the bright natural color to the forgings. This is followed again by a washing in water to remove the solution.

(To be continued)

Alloy Steel Achievement Awards To Be Made

Outstanding accomplishments in the science and technology of alloy steels are to be recognized at the 30th annual Metal Congress and Exposition in Philadelphia, October 25 to 29. "Distinguished Service Awards" are to be made to living scientists for their contributions to progress in this field. A committee has been set up to consider nominations submitted to it and to select outstanding men in all branches of the field.

Nominations are invited by the committee from anyone in the metal producing or metal consuming fields. Chairman of the distinguished service awards committee is J. M. Schlendorf of Republic Steel Corp., Republic Bldg., Cleveland. Names of nominees should be sent to him.

How Steel Is Made

"How a Steel Mill Operates," a natural color cutaway view of a typical steel mill, 21 x 22 in. in size, is available free to readers. Included is a flow chart showing the progressive production processes and a brief explanation of the production of steel in a typical plant.

Canadian Mine Report Shows Activity Decline

Number of active mining companies in Canada has fallen from 1765 two years ago to less than half that total currently. The number presently in operation is 842. The greatest number of casualties was among companies engaged in gold exploration and prospecting, where the decline in two years was 74 per cent.

These and other facts about the Canadian mining industry are contained in the 366-page 1948 Cana-

4 things you should know to make better forgings

1. The maximum forging temperature of the steel

2. How the ductility of the steel changes with varying temperatures

3. The force required to form the steel at varying temperatures

4. Whether the steel has uniform quality

—and here's how to find the answers

FOR the best results in forging, make sure you (a) have the complete forgeability data of the particular analysis used, and (b) use Timken alloy steel.

Using the hot-twist method, metallurgists of The Timken Roller Bearing Company have tested the forgeability of 97 analyses. Their findings have been compiled in a 112-page, Timken Company book, "Evaluating the Forgeability of Steels". It's yours for the asking.

Regardless of the analysis you use, Timken forging quality alloy steels assure uniform forgeability, superior surface and internal quality, and unvarying composition and response to heat treatment, from bar to bar and from heat to heat. That's why better forgings are made at less cost with Timken alloy steels. The Timken Roller Bearing Company, Steel & Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH

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Fine Alloy

STEEL

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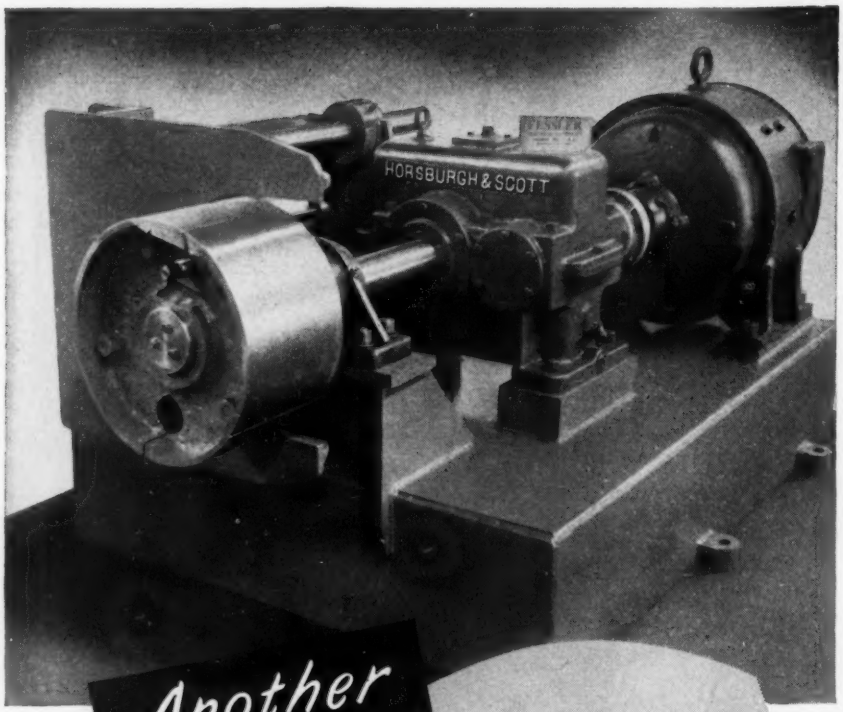
Specialists in alloy steel—including hot rolled and cold finished alloy steel bars—a complete range of stainless, graphitic and standard tool analyses—and alloy and stainless seamless steel tubing



Another
HORSBURGH & SCOTT
Steel Mill Installation

This 16" x 10" Reel Block being driven through a Horsburgh & Scott speed reducer is just one of many different types of machines and operations in steel mills where H & S has supplied equipment for transmitting power. For over fifty years H & S has furnished gears and speed reducers to the steel industry . . . designing and producing equipment that is accurate, dependable, efficient . . . built to endure.

Valuable information is at your service in our complete speed reducer catalog . . .

Send note on Company Letterhead for Speed Reducer Catalog 46

THE HORSBURGH & SCOTT CO.
GEARS AND SPEED REDUCERS
5112 HAMILTON AVENUE • CLEVELAND 14, OHIO, U. S. A.

dian Mines Handbook published by Northern Miner Press Ltd., Toronto, Ont.

The total number of Canadian mining companies, both active and inactive, now listed in the handbook is 8319, a new peak. Of these 7477 are inactive, as compared with 6511 a year ago. During the last 12 months, the book relates, only 143 new mining companies have been incorporated, compared with 531 incorporated in the previous year. Only 20 companies previously inactive returned to the active stage last year.

Hewitt Introduces High Tension Conveyor Belt

Development of a combination rayon-nylon fabric conveyor belt for jobs where belt tensions run as high as 1000 pounds per inch of width is announced by Hewitt Rubber Division, Hewitt-Robins Inc., Buffalo. Known as Raynile, it derives its strength in the lengthwise direction from heavy cables of fine-strand rayon filaments and crosswise from flexible nylon cable, these being bonded together and the top cover being bonded to the carcass by shock absorbing and distributing cord breaker.

The belt carcass, according to J. H. Hayden, vice president in charge of sales, has about twice the strength of standard 48-ounce cotton fabric and has enough flexibility to assure troughing under empty or loaded conditions.

Air Sampling, Analysis Covered in Booklet

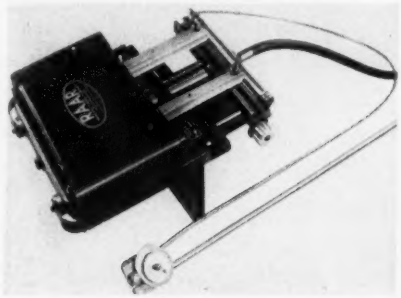
"Industrial Air Sampling and Analysis" is the title of a 72-page bulletin published by Industrial Hygiene Foundation of Pittsburgh. It comprises a handbook and reference manual covering routine sampling and control of atmospheric contaminants in maintaining a better place to work. Methods of air sampling, as explained, may be divided into two principal groups: Samples taken instantaneously; or those taken over a period of from 1 minute to several hours.

Also described are several methods and techniques for analyzing contaminated atmospheres, such as test paper and flame test methods, physical methods, mixtures of contaminants in air, flow measurements, calibrations of sampling instruments, etc. There are 139 literature references for consulting on detailed phases of contaminant measurements and seven tables giving varied information.

New Products and Equipment

Air Feed Mechanism

Either strip or coil stock may be fed with equal facility with the air feed mechanism for presses developed by Raar Mfg. Co. Inc., 1200 North Screenland Drive, Burbank, Calif. The device will feed stock up to 1/4-inch thick and up to 8 inches wide in a stroke length variable from 0 to 6 inches. Increments longer than 6 inches are accomplished by tripping the control valve more than once in a



single punch press stroke. A foot trip in conjunction with the machine trip can be used.

Feed is adjustable in operation by the turn of a micrometer calibrated dial knob. The control valve is cam-operated, the cam operating feed from maximum to minimum for all dies and presses. Mounting is fully adjustable in material levels of the dies. The feed can be mounted on any side of the press and will provide over 300 strokes per minute under air pressure of 30 pounds.

Check No. 1 on Reply Card for more Details

Power Wheelbarrow

Powered through a V-belt drive and enclosed gears from an air-cooled 3.9 horsepower gasoline engine, the Moto-Bug power wheel barrow, built by Kwik-Mix Co., a subsidiary of

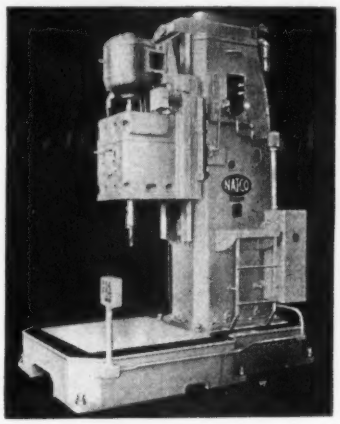
Koehring Co., 3026 West Concordia Ave., Milwaukee 10, Wis., has a rated capacity of 10 cubic feet, or about 1000 pounds. It has finger tip control of speeds from 2 to 4 miles per hour, both forward and reverse.

Features include an instantaneous gravity dump body with chain stop that assures a clean dump, a steering device which turns the barrow in its own length, a maximum width of 33 inches, a differential on the front axle and three rubber-tired wheels.

Check No. 2 on Reply Card for more Details

Drilling Machine

A drilling machine which will operate at peak efficiency under abnormal or overloaded conditions is the heavy duty hydraulic machine developed by National Automatic Tool Co., Richmond, Ind. It is equipped with a heavy duty single spindle 7-speed geared head. The 30-horsepower motor maintains a synchronous speed up to the rated horsepower when



drill becomes dull. As the load builds up to a predetermined value a torque limiting device operates to stop the motor.

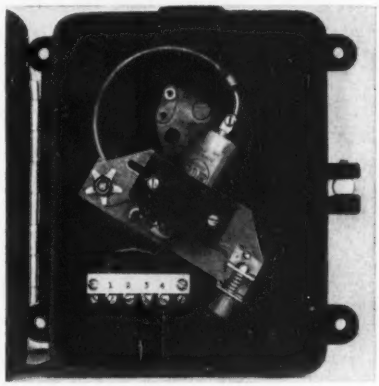
A range of 42 different speeds is made possible through change gears. The rugged frame construction provides maximum rigidity to column, head and spindle. A shear pin arrangement is provided to prevent destruction of gears in the head in the event of serious overloading.

Check No. 3 on Reply Card for more Details

Pressure Measuring System

Automatic Temperature Control Co. Inc., 5212 Pulaski Ave., Philadelphia 44, Pa., is introducing a precision pressure measuring system, the heart of which is based on applying a differential transformer which develops a linear output to standard primary measuring elements such as Bourdon tubes or bellows, depending upon the pressure range. The Bourdon tube is not loaded and is not called upon to accomplish any work, only the armature moves slightly.

Armature is direct-connected to the tube tip. Zero adjustment is embodied in a thumb screw. The Atcotran pressure transmitters and standard Atcotral receivers are accurate to within ¼ of 1 per cent reading. Any number of pressure transmitters, of the same or different ranges, may be read from one common indicator

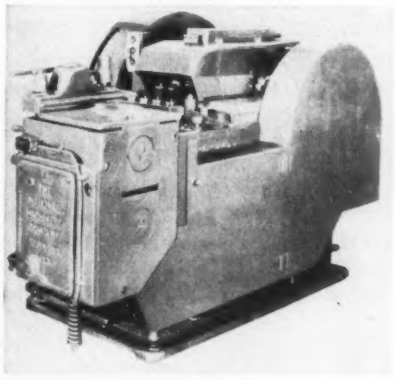


equipped with selector switch stations. Units are available for service on many corrosive applications. Standard ranges from 0 to 30 to 0 to 10,000 pounds per square inch are offered.

Check No. 4 on Reply Card for more Details

Cold Nut Former

Standard single and double chamfered nuts, washer faced nuts, castellated nuts, hug lock nuts and other varied nuts may be produced on the improved cold nut former designed by National Machinery Co., Tiffin, O. Similar to a transfer header in



design, the nut former performs only a minimum of cold forging work on the blanks until the later operations. Internal stresses caused by early work hardening are avoided and the finished blanks have typical forging strength and toughness.

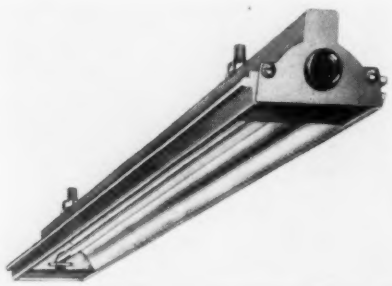
Machine features include a short rigid bed frame, patented overarm heading slide, automatic lubrication and a four-station transfer mechan-

ism which turns the nut blanks 180 degrees after each stroke. All operations (gathering, blanking, formings, punching) are carried on simultaneously and the former produces a complete nut on each stroke. Machines are built in 5/16, 3/8, 1/2, 5/8, 3/4 and 1 inch sizes.

Check No. 5 on Reply Card for more Details

Radiant Heaters

Glassless and glareless, the high intensity infrared heaters, made by Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa., utilize almost the entire infrared band. The Chromalox heaters have their heating element mounted in a rigid ex-



truded aluminum body with a reflector sheet of high polished Alzaked aluminum. Tongued and grooved sides and two sliding captive bolts facilitate fabrication of heater sections into various working patterns.

A negligible amount of visible light is produced from the Inconel sheathed tubular electric heating unit which operates at temperatures of 1000 to 1400° F, depending upon the wattage of the heating element. Three standard body lengths are 25, 31 and 47 inches, with respective heated lengths of 17, 23 and 39 inches. Standard height is 4 inches.

Check No. 6 on Reply Card for more Details

Shop Tractors

Announced by W. F. Hebard & Co., 336 West 37th St., Chicago 9, Ill., are two new materials handling trucks, the model J233PLD dump tractor and the model J233PLS stake

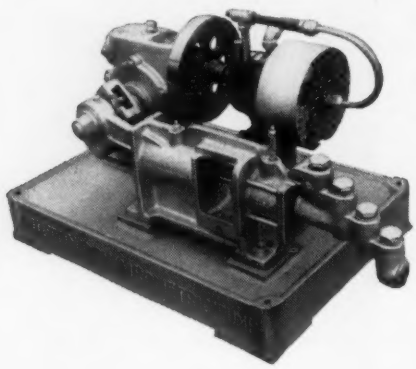
platform tractor (illustrated), both powered by International Harvester heavy duty motor truck engines. Their drawbar effort of 3000 pounds insures a towing capacity of 60 tons on dry level concrete. The dump tractor has a capacity of 1½-cubic yards of scrap and bulky materials weighing up to 4000 pounds.

Stake platform measures 64 inches wide and 51 inches long behind the drivers seat. Maintenance equipment such as snow plows and rotary sweeper brooms may be mounted on both models. Towing coupler is of the universal type.

Check No. 7 on Reply Card for more Details

Air Motor Pump

A 1 horsepower rotary air motor power the simplex and duplex model chemical pumps recently announced by Milton Roy Co., 1308 East Mermaid Rd., Philadelphia 18, Pa. It may be operated by natural gas or compressed air as the prime mover, with



air pressures from 50 to 80 pounds per square inch. A pressure regulator and indicating gage are supplied to reduce the supply pressure to that required for operation. Maximum motor speed is 1750 revolutions per minute, held constant by a governor.

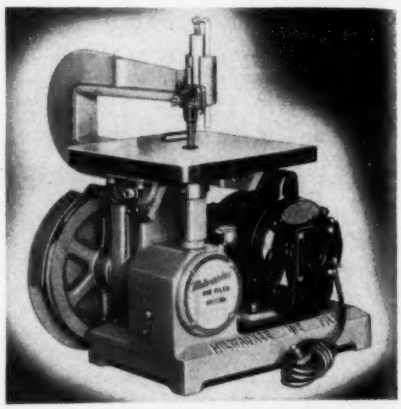
Maximum pumping capacities are from 1.2 to 75.5 gallons per hour for the simplex and from 2.4 to 151 gallons per hour for the duplex. Maximum discharge pressures range from 115 to 9500 pounds per square inch, varying with volume being pumped.

Check No. 8 on Reply Card for more Details

Filing Machine

Die making operations such as filing, sawing and lapping can be performed with the model FS bench-type reciprocal filing machine, announced by Rice Pump & Machine Co., Milwaukee, Wis. Versatility is gained by its deep-throated overarm equipped with an upper chuck in the overarm assembly, making it possible to chuck files, saws or lapping sticks the upper as well as the lower end.

Spring tension on saws and thin files may be adjusted by moving overarm chuck assembly up or down. A ball joint permits perfect alignment of files with warped, crooked or twisted shanks before they are rigidly clamped in working position. The overarm can be released and swung clear of the table for inspec-



tion and checking of the work piece. The work table can be tilted 15 degrees in four directions.

Check No. 9 on Reply Card for more Details

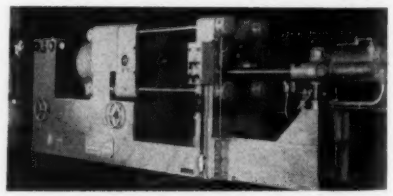
Impact Wrench

Cleco Division of Reed Roller Bit Co., Box 2119, Houston, Tex., is manufacturing a pneumatic impact wrench rates nominally for 3/8-inch bolts. It will handle bolting up and nut running operations, as well as reaming, tapping, stud setting and drilling. The tool is reversible, making it applicable for all types of production, assembly and maintenance work.

Check No. 10 on Reply Card for more Details

Die Casting Machine

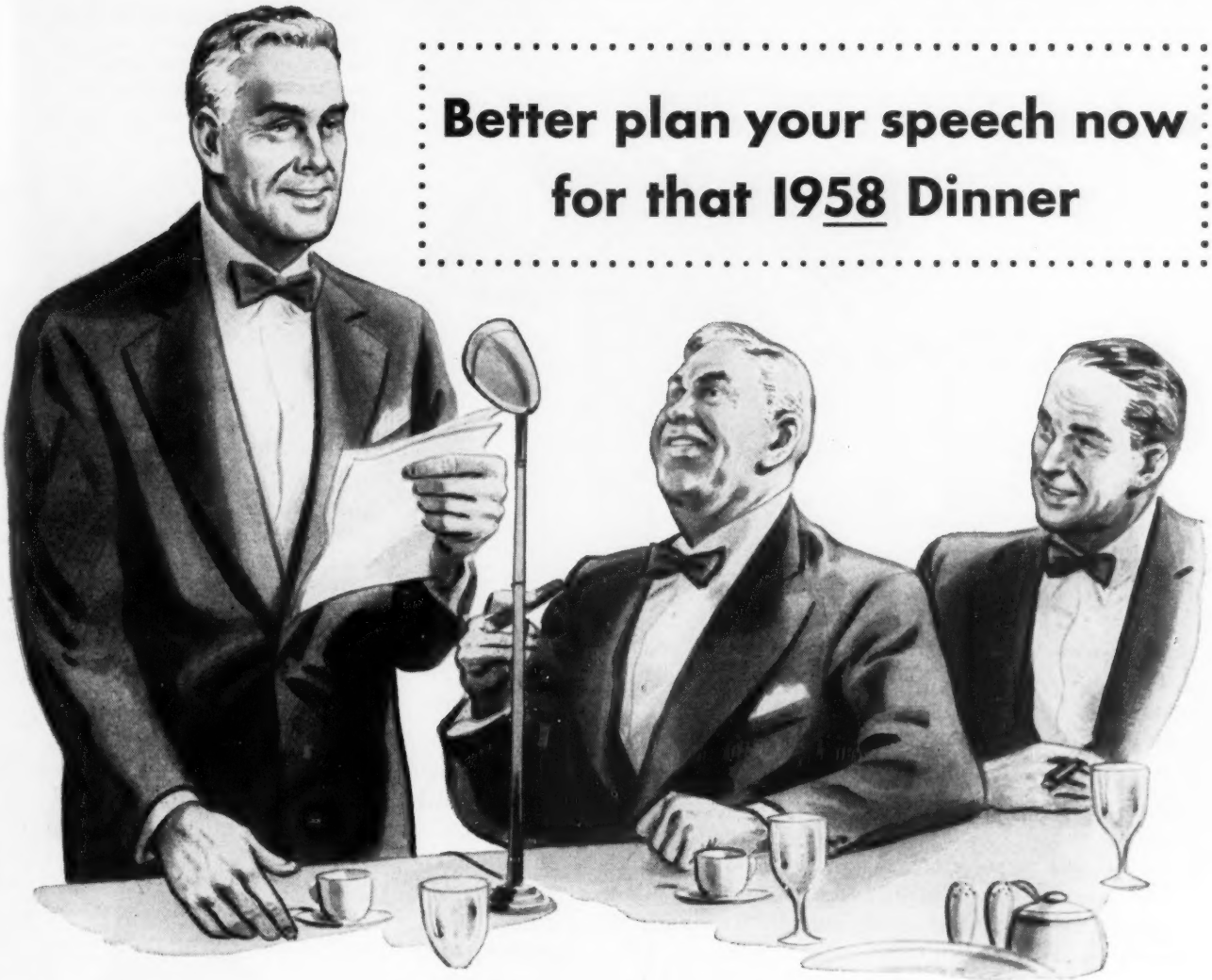
Aluminum castings weighing up to 10 pounds each can be mass produced with the new cold chamber, self-contained, all-hydraulic die casting machine announced by Hydraulic Press Mfg. Co., Mount Gilead, O. Advantages of this machine over the previous model 400-A unit are: Clear-



ance is provided below die space mounting to accommodate core pulls attached to the die bottom; this clearance provides ample room for castings to drop from die onto a conveyor or into a quenching tank; injection speed is increased from 100 to 200 feet per minute; and hydraulic power unit and its reservoir are mounted integral with machine base.

Safety features of the press include

Better plan your speech now for that 1958 Dinner



Ten years can be a mighty short span in the history of a business. *Yours* for example.

When the time comes to address your fellow executives at the "Annual Banquet" in 1958, will there be a decade of outstanding company progress for you to review?

One way to make sure of a prospering business tomorrow is to make certain *today* that your employees are buying U.S. Security Bonds regularly—on the Payroll Savings Plan. The Payroll Savings Plan is a "look-ahead" plan for both management and employees. It builds up an employee group with a sense of extra security...with a tangible stake in the nation's future...a group bound to shun dollar-destroying philosophies. At maturity, the Bonds pay $4 for every $3 invested.

P.S.P. is paying off *today*, for every Security Bond dollar built up in the Treasury retires a dollar of the national debt that is potentially inflationary. Records of the companies that actively maintain the Payroll Savings Plan show improved employee attitudes. Absenteeism and accidents have dropped as the individual's feeling of security grows with regular Bond buying.

The whole plan of action for use within your company has been mapped out. Just call your Treasury Department's State Director, Savings Bond Division.

The Treasury Department acknowledges with appreciation the publication of this message by

STEEL

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.

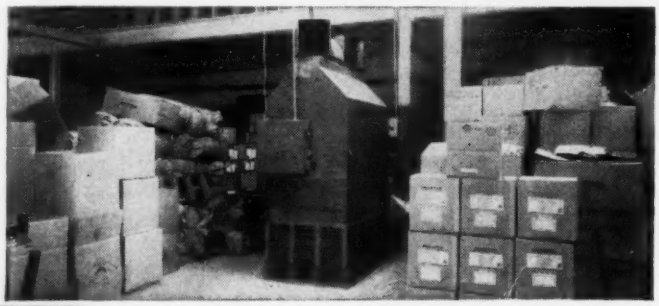
look-
no hands!

THIS IS
YOUR HEATING SUPERINTENDENT
WHEN YOU HEAT
WITH DRAVO HEATERS

IT's an *automatic* fireman who goes on the job at the flip of a switch for the Sanatex Company of Chicago. It cuts operational and maintenance expense to the bone and solves what had appeared to be an expensive heating problem for this processor of wiping cloths.

Not only is an attendant unnecessary—boiler-room and ductwork expense was eliminated, too, by installation of a Dravo *Counterflo* Heater. Centered along the east wall, the Dravo *Counterflo* Heater is entirely self-contained—requiring only power and fuel lines and a small vent stack. Its 1,000,000 BTU output is directed slightly over the heads of the workers to blanket 10,000 square feet of unbroken plant area with draft-free warm air. Cold corners and excessive roof heat loss are eliminated. During summer months, a touch of the selector switch converts the Dravo *Counterflo* Heater immediately into a powerful air-circulating unit.

Dravo *Counterflo* Heaters are available in sizes ranging from 400,000 to 2,000,000 BTU output. Equally efficient with oil or gas and with or without ductwork, they can be floor-installed, wall-hung or roof-hung. Write for Bulletin HU-516. Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pennsylvania.



DRAVO

According to Mr. Schulman, President of Sanatex Company, the Dravo *Counterflo* Heater "is the best equipment we ever had. Delivery of heat is virtually instantaneous when the unit goes into action—an important fuel-saving feature which eliminates the need for anticipating cold spells or keeping the heater in operation when the plant is closed."

Dravo also manufactures the *DRAVO CRANE CAB COOLER* for air conditioning hot-metal crane cabs

DRAVO CORPORATION

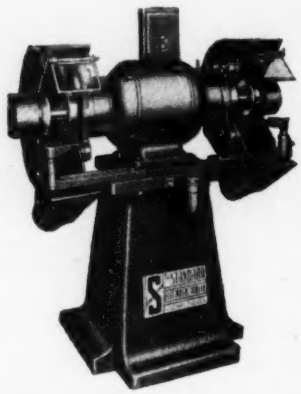
PITTSBURGH • CLEVELAND • PHILADELPHIA • DETROIT • NEW YORK • CHICAGO
ATLANTA • BOSTON *Sales Representatives in Principal Cities*

combination electric and hydraulic interlock controls which prevent the die clamp from accidentally closing due to electrical switch failure. Hand wheels are located on the front of the machine for adjusting die clamp and injection pressures. The die clamp consists of a double-acting ram equipped with a small internal booster ram which closes rapidly, providing for smooth uniform castings with a minimum of flash and porosity. Maximum die clamping pressure is 400 tons and die space measures 23 x 38 inches.

Check No. 11 on Reply Card for more Details

Heavy Duty Grinder

Standard Electrical Tool Co., 2504 River Rd., Cincinnati 4, O., is adding a 7½-horsepower, 20-inch grinder to its Cadet line. The type 70FAS machine has a 1150 revolutions per minute motor for 20 x 3 inch wheels. It is ball bearing equipped and its



structural plate steel guards are adjustable to wheel wear.

Each guard has a hinged door, exhaust outlet and adjustable spark breaker. A pushbutton safety starter has overload protection. Optional equipment consists of a removable water pot and safety glass eye shields.

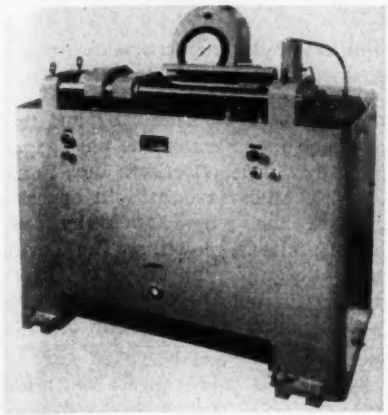
Check No. 12 on Reply Card for more Details

Hydrostatic Tester

Pressures up to 20,000 pounds per square inch may be generated with the hydrostatic testing machine built by Steel City Testing Machines Inc., 8843 Livernois Ave., Detroit 4, Mich. Intended for pressure testing of tubing of various lengths, the machine seals the end of the tubing without any perceptible flare, eliminates air and builds up the required pressure. For a predetermined time cycle it holds the pressure and then automatically reverses and is ready for the next test.

Pressure gage can be disconnected during test—peak test pressure being

indicated by a red light on the machine panel. Load and unload time is about 4 seconds. Equipment consists of hydraulic pump and motor, electrical timers and switches, solenoids,



relays and valves. It is one piece steel fabricated constructed, the electrical panel being integral with the base. The machine may be built for higher pressures.

Check No. 13 on Reply Card for more Details

Vibratory Feeder

Electromagnetic vibration applied to a bowl container produces a circular traveling and climbing motion of small pieces, parts or bulk powders, etc., in the feeder developed by Syntron Co., 370 Lexington Ave., Homer City, Pa. By having a grooved track

ramp up the inside of the wall of the bowl these small pieces can be fed one at a time, in single file, in a predetermined manner to a machine, to packages, for inspection, counting, assembly to other parts, etc.

Speed of feed and starting and stopping of flow can be readily controlled. The size of the piece to be

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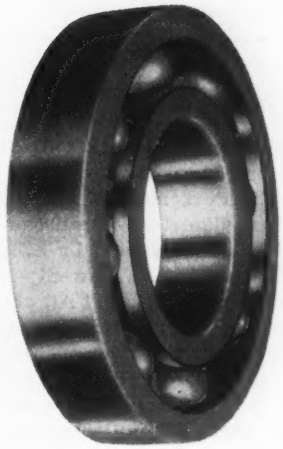
PLAN Steady DRAFT-HORSE DEPENDABILITY IN EVERY BASIC DESIGN

You've often remarked that no piece of equipment can be superior to its component parts...

You appreciate the broad recognition and acceptance of BCA Ball Bearings in industry . . .

You know you can tell your engineers to draw upon our half-century of experience in friction control practices, encompassing many varied fields of industry . . .

You, who insist upon continuous, full-capacity, trouble-free operation, know this can be assured by specifying BCA Ball Bearings.



BEARINGS COMPANY OF AMERICA
LANCASTER, PENNSYLVANIA

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handled, particularly the length, determines the arc of the grooved track, and consequently the size of the bowl.

Check No. 14 on Reply Card for more Details

Frequency Stabilizer

Hobart Brothers Co., Hobart Square, Troy, O., is producing a high frequency stabilizer, designed for use with alternating and direct current welders in inert-gas-shielded tungsten electrode welding, in sheet metal

work and other applications involving low currents, in vertical and overhead welding and with the twin carbon arc torch.

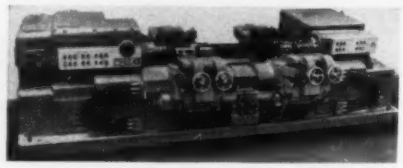
Developed to adapt ordinary alternating current transformer welders for Heliarc welding, the unit increases the impulses from 120 per second to 4,000,000 per second. A control is provided for adjusting the intensity to suit the job on hand. Two sizes, with maximum capacities of 300 and 500 amperes, are available.

Check No. 15 on Reply Card for more Details

Axle Lathe

An electrically controlled, hydraulically operated automatic lathe for rough or finish turning the wheel seat and journal diameters of railroad car axles is being built by Morey Machinery Co. Inc., 57 Twenty-sixth Ave., New York 2, N. Y. All chucking clamping, feed and traverse movements are hydraulically powered. An end drive chucking method is used to hold the axle by hydraulic pressure from the tailstock quill towards the headstock spindle, transmitting the power through wedge type buttons on the spindle flange.

The extreme rigidity of the 58,000 pound machines makes it possible to use multiple tooling with tungsten carbide tools at their maximum efficiency. The main spindle drive is designed to transmit 150 horsepower at continuous duty. Complete machining cycle per axle takes between 2 and 3 minutes. An automatic com-



pensating device moves all cutting tools during chucking to a symmetrical position in relation to the axle with the result that width of end flanges on each axle remain the same on both ends. A roller steadyrest supports the axle for the finish turning operation.

Check No. 16 on Reply Card for more Details

• • •

TAPPING HEAD: The auto-reverse turret lathe tapping head, made by Errington Mechanical Laboratory Inc., Staten Island 4, N. Y., makes it possible to tap the hole and back out the tap without stopping work or reversing the machine in a turret lathe setup. Its friction chuck makes possible tapping of blind holes. The head, which has a 2 to 1 reverse, may also be used in drill presses.

Check No. 17 on Reply Card for more Details

HAND PUMPS: Industrial Pump Division of Bowser Inc., Fort Wayne, Ind., is producing three new rotary hand pumps, a crank-operated barrel pump with a 7½-inch drip pan cast integral, another the same as above except that a meter with an 8-gallon dial is mounted between pump and spout and a 10 gallon per minute crank-operated barrel pump with an 8-gallon dial meter. All three have provisions for excluding foreign matter and second named model has a 9999 gallon totalizer.

Check No. 18 on Reply Card for more Details

SPOT WELDER TIP HOLDER: Welder tips are ejected easily with a light tap on the head of the new water-cooled ejector type holder for spot welder tips, announced by Ampco Metal Inc., Milwaukee 4, Wis. Leak proof holder has a replaceable water seal of Sirvene rubber. Head is of impact resistant aluminum-bronze alloy.

Check No. 19 on Reply Card for more Details

MAGNETIC PULLEY: Eriez Mfg. Co., Erie, Pa., is producing the Puri-Pulley magnetic pulley for removing fine iron or less magnetic particles from nonferrous material ranging from 10 to 200 mesh. Magnetic field is concentrated within 1 inch of face plate. Pulley is offered in 18 and 24 inch diameters and 12 to 60 inch widths.

Check No. 20 on Reply Card for more Details

PLUG GAGES: The "go" and "no go" gage members of the plug gages made by Turner Brothers Inc., Ferndale 20, Mich., are held in opposite ends of the gage handle by self-locking plastic collets. The device grips the gages and prevents it from sticking in hole being gaged. Plast-O-Lock gages are offered in 0.050 to 0.690-inch widths.

Check No. 21 on Reply Card for more Details

VIBRATION CONTROL: Elasto-Rib, a laminated rubber-cork material for vibration and noise control, made by Korfund Co. Inc., Long Island City 1, N. Y., is made of a layer of cork bonded between two layers of deep grooved, oil-resistant synthetic rubber. Ribbed contour increases isolation properties. It is offered in 1-inch sheets up to 24 x 36 inches in size. Recommended loading is between 7 and 21 pounds per inch.

Check No. 22 on Reply Card for more Details

LUBRICANT WAX: LW 20 wax, made by S. C. Johnson & Son Inc., Racine, Wis., is for use as a lubricant in the manufacture of metal items by the impact extrusion process. It remains in place under the terrific heat and does not dissipate. A dry finish is provided, one that is easy to handle, is sanitary and will not turn rancid.

Check No. 23 on Reply Card for more Details

RACK COATING: Enthone Inc., New Haven, Conn., is announcing Enthonite 101 liquid plastic plating rack coating, supplied as a viscous liquid containing 100 per cent solids. It is applied by dipping to produce coating from ⅛ to ¼-inch thick. Application is over a primer coat and it is baked at a temperature of 350°F.

Check No. 24 on Reply Card for more Details

FOR MORE INFORMATION
on the new products and equipment in this section, fill in a card. It will receive prompt attention.

Market Summary

MILL BACKLOGS— Order books of the steel producers are loaded down with tonnage commitments as they enter the fourth quarter this week with heavier order carryovers than three months ago. Despite intensive efforts to catch up on arrearages, and sustained, high production over the past several months, most producers find themselves a month to six weeks behind on commitments, and, on the average, they are in somewhat tighter position than they were at the beginning of the third quarter.

STEEL SUPPLY— Anticipated higher steelmaking operations over the remainder of the year are not expected to improve consumers' supply position materially, if at all. Pressure of demand currently is even stronger than it has been recently, with certified requirements on a heavier scale. While order backlogs in some consumer durable goods lines are reported tapering, this has had little, if any reflection in steel demand to date, and with defense program and foreign aid requirements getting into full swing, indications are supply conditions will tighten still further.

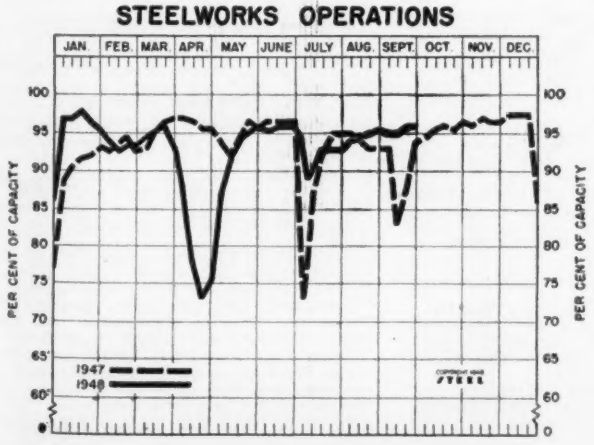
CONSUMER QUOTAS— As the situation now stands, producers are confronted with far more tonnage demand than they can handle over the remainder of the year and it is a virtual certainty the quarter will end with large carryovers into first quarter of next year. In most instances steelmakers' schedules have become fairly well set for the last quarter, with only a national emergency standing a chance of disrupting the general distribution pattern for the period. Some mills have not yet announced consumer quotas for the entire fourth quarter, still going on a month-to-month basis, but most sellers' distribution programs, nevertheless, now are reasonably well charted. Reduction in tonnage quotas allotted consumers varies among the products, ranging from 10 to 20 per cent on those items in greatest stringency, such as plates, the light flat-rolled products and pipe.

PRICES— Inflationary pressure on the steel price structure appears increasing but, except for an adjustment last week on stainless steel by one producer, finished product prices are unchanged. Raw materials are advancing, however, and may force further upward adjustments in steel product prices over coming weeks. Broad, general advance in ferroalloy prices is scheduled for Oct. 1. One southern ferromanganese producer on that date will raise its price $12 per ton. At the same time pig iron is stronger, an eastern producer last week raising its prices $4 per ton. It would not surprise the trade if other producers followed. Scrap also is showing signs of strength, with sales of steelmaking grades reported here and there above mill formula levels. Scrap movement is improved but not sufficiently so to permit heavy winter stockpiling. Additional foreign scrap has been received. Continued substantial inflow of this material is likely to exert a restraining influence on prices.

PRICE COMPOSITES— STEEL's arithmetical price composite on steelmaking pig iron advanced last week to $44.69 from $44.19 the preceding week, reflecting an advance in the East. A year ago this composite stood at $36.13. Finished steel composite was unchanged last week at $93.86 and compared with $75.41 at this time last year. Semifinished steel composite also held unchanged at $75.75 against $56.80 a year ago. Steelmaking scrap also was unchanged at $43.33 against $37.83 in the like week of 1947.

PRODUCTION— Steelmaking operations held steady last week at 96 per cent of capacity, equivalent to production of 1,732,200 net tons of ingots and castings. The only district decline recorded last week was 1½-points in Wheeling to 93.5 per cent.

STEELWORKS OPERATIONS



DISTRICT STEEL RATES

Percentage of Ingot Capacity engaged in Leading Districts

	Week Ended Sept. 25	Change	Same Week 1947	Same Week 1946
Pittsburgh	94.5	None	98.5	96
Chicago	96.5	+ 0.5	94	90.5
Eastern Pa.	93	None	92	81
Youngstown	103	None	92	90
Wheeling	93.5	— 1.5	89	93.5
Cleveland	97	+ 7	90.5	91
Buffalo	104	None	88.5	90.5
Birmingham	100	None	99	99
New England	83	None	83	95
Cincinnati	102	None	94	84
St. Louis	91.5	None	78	72.5
Detroit	105	+ 5	94	81
Estimated national rate	96	None	94	90.5

Based on weekly steelmaking capacity of 1,802,476 net tons for 1948; 1,749,928 tons for 1947; 1,762,381 tons for 1946.

COMPOSITE MARKET AVERAGES

Arithmetical Price Composites*

	Sept. 25	Sept. 18	Month Ago Aug. 1947	Year Ago Sept. 1947	5 Years Ago Sept. 1943
Finished Steel	$93.86	$93.86	$93.86	$75.41	$56.73
Semifinished Steel	75.75	75.75	75.75	56.80	36.00
Steelmaking Pig Iron	44.19	44.19	44.13	36.14	23.00
Steelmaking Scrap	43.33	43.33	43.33	37.83	19.17

FINISHED STEEL WEIGHTED COMPOSITE†

Aug. 1948	4.06642c
July 1948	3.79216c
Aug. 1947	3.46652c
Aug. 1943	2.45773c

***STRAIGHT ARITHMETICAL COMPOSITES:** Computed from average industry-wide mill prices on Finished Carbon Steel (hot-rolled sheets, cold-rolled sheets, cold-rolled strip, hot-rolled bars, plates, structural shapes, basic wire, standard nails, tin plate, standard and line pipe), on Semifinished Carbon Steel (re-rolling billets and slabs, sheet bars, skelp, and wire rods), on Basic Pig Iron (at eight leading producing points), and on Steelworks Scrap (No. 1 melting grade at Pittsburgh, Chicago and eastern Pennsylvania). Steel arithmetical composites, dollars per net ton; pig iron and scrap, gross ton.

†**FINISHED STEEL WEIGHTED COMPOSITE:** Computed in cents per pound, mill prices, weighted by actual monthly shipments of following products, representing about 82 per cent of steel shipments in the latest month for which statistics are available, as reported by American Iron & Steel Institute: Structural shapes; plates, standard rails; hot and cold-finished carbon bars; black butt weld pipe and tubes; black lap weld pipe and tubes; black electric weld pipe and tubes; black seamless pipe and tubes; drawn wire; nails and staples; tin and terne plate; hot-rolled sheets; cold-rolled sheets; galvanized sheets; hot-rolled strip; and cold-rolled strip. July and August, 1948, figures are preliminary.

COMPARISON OF PRICES

Representative market figures for current week; average for last month, wire rods, cents per lb; semifinished (except wire rods) and coke, dollars three months and one year ago. Finished material (except tin plate) and per net ton, others dollars per gross ton. Delivered prices represent lowest from mills.

Finished Materials

	Sept. 25, 1948	Aug. 1948	June 1948	Sept. 1947
Steel bars, Pittsburgh mills	3.45c	3.45c	2.875c	2.90c
Steel bars, del. Philadelphia	3.79	3.79	3.365	3.28
Steel bars, Chicago mills	3.35	3.35	2.875	2.90
Shapes, Pittsburgh mills	3.25	3.275	2.775	2.80
Shapes, Chicago mills	3.25	3.25	2.775	2.80
Shapes, del. Philadelphia	3.48	3.48	2.98	2.94
Plates, Pittsburgh mills	3.50	3.50	2.925	2.95
Plates, Chicago mills	3.40	3.40	2.925	2.95
Plates, del. Philadelphia	3.71	3.71	3.21	3.15
Sheets, hot-rolled, Pittsburgh mills	3.275	3.275	2.775	2.80
Sheets, cold-rolled, Pittsburgh	4.00	4.00	3.50	3.55
Sheets, No. 10 galv., Pittsburgh	4.40	4.40	3.90	3.90
Sheets, hot-rolled, Gary mills	3.25	3.25	2.775	2.80
Sheets, cold-rolled, Gary mills	4.00	4.00	3.50	3.55
Sheets, No. 10 galv., Gary mills	4.40	4.40	3.90	3.90
Strip, hot-rolled, Pittsburgh mills	3.275	3.275	3.05	2.80
Strip, cold-rolled, Pittsburgh mills	4.00	4.25	3.775	3.55
Bright basic, wire, Pittsburgh	4.15	4.325	3.725	3.675
Wire nails, Pittsburgh mills	5.20	5.775	5.125	4.25
Tin plate, per base box, Pitts. dist.	$6.70	$6.80	$6.70	$5.75

Semifinished

Sheet bars, mill	$67.00*	$67.00*	$60.00	$53.57
Slabs, Pittsburgh, Chicago	52.00	52.00	45.00	40.18
Rerolling billets, Pittsburgh	52.00	52.00	45.00	40.18
Wire rod ⅜ to ¼-inch, Pitts. dist.	3.775c	3.775c	3.175c	2.925c

* Nominal.

Pig Iron

	Sept. 25, 1948	Aug. 1948	June 1948	Sept. 1947
Bessemer, del. Pittsburgh (N.&S. sides)	$48.08	$48.08	$44.08	$37.83
Basic, Valley	43.00	43.00	39.00	36.00
Basic, eastern del. Philadelphia	50.17	46.17	42.17	38.72
No. 2 fdry., del. Pgh. (N.&S. sides)	47.58	47.58	43.58	37.33
No. 2 fdry., del. Philadelphia	50.67	46.67	42.67	39.22
No. 2 foundry, Chicago	43.25	43.25	39.00	36.00
No. 2 foundry, Valley	43.50	43.50	39.50	36.50
Southern No. 2 Birmingham	43.38	43.38	39.38	34.88
Southern No. 2 del. Cincinnati	49.09	49.09	45.09	39.75
Malleable, Valley	43.50	43.50	39.50	36.50
Malleable, Chicago	43.50	43.50	39.50	36.50
Charcoal, low phos., fob Lyles, Tenn.	62.00	62.00	58.00	44.00
Ferromanganese, fob cars, Pittsburgh	148.00*	148.00*	151.15	140.25

* F.o.b. Aetna, Pa.

Scrap

Heavy melt. steel, No. 1, Pittsburgh	$42.75	$42.75	$40.25	$38.00
Heavy melt. steel, No. 2, E. Pa.	41.50	41.50	39.00	36.75
Heavy melt. steel, No. 1 Chicago	41.75	41.75	39.25	38.75
Heavy melt. steel, No. 1 Valley	42.75	42.75	40.25	39.50
Heavy melt. steel, No. 1, Cleveland	42.25	42.25	39.75	38.25
Heavy melt. steel, No. 1 Buffalo	47.50	46.56	43.00	39.00
Rails for rerolling, Chicago	64.25	64.13	53.75	46.25
No. 1 cast, Chicago	70.00	70.75	68.38	43.50

Coke

Connellsville, beehive furnace	$14.50	$14.38	$13.00	$12.00
Connellsville, beehive foundry	17.00	17.00	15.22	14.50
Chicago, oven foundry, ovens	20.40	20.40	19.50	17.50

FINISHED AND SEMIFINISHED IRON, STEEL PRODUCTS

Finished steel quoted in cents per pound and semifinished in dollars per net ton, except as otherwise noted. Prices apply on an individual producer basis to products within the range of sizes, grades, finishes and specifications produced at its plants

Semifinished Steel

Carbon Steel Ingots: Rerolling quality, standard analysis, open market, $100-105 per gross ton. Forging quality $50 per net ton, mill.

Alloy Steel Ingots: $51 per net ton, mill. **Rerolling Billets, Blooms, Slabs:** $52 per net ton, mill, except $62, Conshohocken, Pa.; $66, Monessen, Pa.; sales by smaller interests on negotiated basis at $85 per gross ton, or higher.

Forging Quality Billets, Blooms, Slabs: $61 per net ton, mill, except: $68, Conshohocken, Pa., mill.

Alloy Billets, Slabs, Blooms: Rerolling quality, $63 per net ton, mill, except: $70, Conshohocken, Pa.

Sheet Bars: $67 nom., per net ton, mill; sales in open market $110-$115 per gross ton.

Skelp: 3.25c per lb, mill.

Tube Rounds: $76 per net ton, mill; some sellers quoting up to $120 per gross ton.

Wire Rods: Basic and acid open-hearth, 7/32 & ⅜-inch, inclusive, 3.40c per lb, mill, except: 3.65c, Struthers, O.; 3.70c, Worcester, Mass.; 4.05c, Pittsburg, Calif.; 4.10c, Portsmouth, O., Los Angeles; 4.15c, Monessen, Pa. One producer quotes 3.90c, Chicago base. Basic open-hearth and bessemer, not resulphurized, 7/32 to 47/64-inch, inclusive, 3.50c, mill.

Bars

Hot-Rolled Carbon Bars (O.H. only) and Bar-Size Shapes under 3-in. (Base 20 tons one size): 3.35c, mill, except: 3.55c, Ecorse, Mich., Pittsburgh, Monessen, Aliquippa, Pa.; 4.05c, Pittsburg, Torrance, Calif.; 4.10c, S. San Francisco, Los Angeles, Niles, Calif., Portland, Oreg., Atlanta, Seattle; 4.20c, Kansas City, Mo.; 4.25c, Minnequa, Colo.; 5.30c, Fontana, Calif.

Rail Steel Bars: (Base 10 tons): 3.35c, Moline, Ill.; 4.80c, Williamsport, Avis, Pa.

Hot-Rolled Alloy Bars: 3.75c, mill, except: 4.05c, Ecorse, Mich.; 4.80c, Los Angeles; 5.50c, Fontana, Calif.

Hot-Rolled Alloy Bar Shapes: 4.00c, mill.

Cold-Finished Carbon Bars (Base 20,000-39,999 lb): 4.00c, mill, except: 3.95c, Pittsburgh, Cumberland, Md.; 4.20c, Indianapolis; 4.25c, Monessen, Pa.; 4.30c, Ecorse, Mich.; 4.35c, St. Louis; 4.36c, Plymouth, Mich.; 4.40c, Newark, N. J., Hartford, Putnam, Conn., Mansfield, Readville, Mass.; 4.45c, Camden, N. J.; 5.30c, Los Angeles.

Cold-Finished Alloy Bars: 4.65c, mill, except: 4.75c, Monessen, Pa.; 4.85c, Indianapolis; 4.95c, Worcester, Mansfield, Mass., Hartford, Conn.

High-Strength, Low-Alloy Bars: 5.10c, mill, except: 5.40c, Ecorse, Mich.

Reinforcing Bars (New Billet): 3.35c, mill, except: 3.55c, Monessen, Pa.; 4.05c, Pittsburg, Torrance, Calif.; 4.10c, Atlanta, Seattle, S. San Francisco, Los Angeles; 4.25c, Minnequa, Colo. Fabricated: To consumers: 4.10c, Pittsburgh; 4.25c, S. Duquesne, Pa., Gary, Ind., Youngstown; 5.00c, Seattle.

Reinforcing Bars (Rail Steel): 4.65c, Williamsport, Pa., mill; 5.25c, Huntington, W. Va.

Wrought Iron Bars: Single Refined: 8.60c, (hand puddled), McKees Rocks, Pa.; 9.50c, Economy, Pa. Double Refined: 11.25c (hand puddled), McKees Rocks, Pa., 11.00c, Economy, Pa. Staybolt: 12.75c, (hand puddled), McKees Rocks, Pa.; 11.30c, Economy, Pa.

Sheets

Hot-Rolled Sheets (18 gage and heavier): 3.25c, mill, except: 3.25-3.30c, Cleveland; 3.30c, Pittsburgh; 3.45c, Ecorse, Mich.; 3.95c, Pittsburg, Torrance, Calif.; 5.00c, Conshohocken, Pa.; 5.65c, Fontana, Calif.

Hot-Rolled Sheets (19 gage and lighter, annealed): 4.15c, mill, except: 4.40c, Alabama City, Ala.; 4.65c, Niles, O., 5.05c, Torrance, Calif., Kokomo, Ind.

Cold-Rolled Sheets: 4.00c, mill, except: 4.20c, Granite City, Ill., Ecorse, Mich., 4.95c, Pittsburg, Calif.

Galvanized Sheets, No. 10: (Based on 5 cent zinc) 4.40c, mill, except: 5.00c, Niles, O.; 5.15c, Pittsburg, Torrance, Calif.; 5.30c, Kokomo, Ind.

Galvannealed Sheets: 4.95c, mill, except: 5.05c, Indiana Harbor, Ind.; 5.55c, Niles, O.; 5.70c, Kokomo, Ind.

Culvert Sheets, No. 16 flat Copper Steel (based on 5-cent zinc) 5.00c, mill, except: 5.40c, Granite City, Ill.; 5.45c, Kokomo, Ind.; 5.75c, Pittsburg, Torrance, Calif.
Copper-Iron: 5.75c, Granite City, Ill.; 5.35c, Irvin, Pa., Gary, Ind.

Aluminized Sheets: Hot-dipped, coils or cut to lengths: 7.75c, mill.

Long Ternes, No. 10 (Commercial quality): 4.80c, mill.

Long Ternes Ingot Iron: 5.20c, mill.

Enameling Sheets, No. 12: 4.40c, mill, except: 4.60c, Granite City, Ill.; 4.70c, Ecorse, Mich.; 6.00c, Niles, O.

Silicon Sheets, No. 24: Field: 5.15c, mill. Armature: 5.45c, mill, except: 6.05c, Niles, O. **Electrical:** Hot-rolled, 5.95c, mill, except: 6.05c, Kokomo, Ind.; 6.15c, Granite City, Ill.; 6.55c, Niles, O.
Motor: 6.70c, mill except: 6.90c, Granite City. Dynamo: 7.50c, mill, except: 7.40c, Follansbee, W. Va., Toronto, O.; 7.70c, Granite City, Ill. Transformer 72, 8.05c, mill, except: 7.90c, Follansbee, W. Va., Toronto, O. 65, 8.60c, mill. 58, 9.30c, mill. 52, 10.10c, mill.

High-Strength Low-Alloy Sheets: Hot-rolled, 4.95c, mill, except: 5.25c, Ecorse, Mich., and Conshohocken, Pa., mills.
Galvanized (No. 10), 6.75c, mill.
Cold-rolled, 6.05c, mill, except: 6.35c, Ecorse, Mich.

Strip

Hot-Rolled Strip: 3.25c mill, except: 3.30c, Cleveland, Pittsburgh, Riverdale, Ill.; 3.25-3.35c,* Sharon, Pa.; 3.45c, Ecorse, Mich., Atlanta; 3.60c, Detroit; 3.70c, West Leechburg, Pa.; 4.00c, Pittsburg, Torrance, Calif.; 4.25c, Seattle, S. San Francisco, Los Angeles; 4.20c, Kansas City, Mo.; 4.30c, Minnequa, Colo.; 5.90c, Fontana, Calif.

* Wider than 6-in. and 6-in. and narrower, respectively.

Cold-Rolled Strip (0.25 carbon and less): 4.00c, mill, except 4.00-4.25c, Warren, O.; 4.00-4.80c, Youngstown; 4.20c, Ecorse, Mich.; 4.25c, Riverdale, Ill.; 4.40-4.50c, Detroit; 4.50c, New Haven, Conn., West Leechburg, New Castle, Pa., Boston; 4.75c, Dover, O.; 4.50-5.00c, Trenton, N. J.; 4.75c, Kensington, Pa.; 4.80-5.05c, Wallingford, Conn.; 5.75c, Los Angeles; 7.10c, Fontana, Calif.

Cold-Rolled Alloy Strip: 9.50c, mill, except 9.80c, Worcester, Mass.

High-Strength, Low-Alloy Strip: Hot-rolled, 4.95c, mill, except: 5.25c, Ecorse, Mich., mill. Cold-rolled, 6.05c, mill, except: 6.35c, Ecorse, Mich., mill.

Tin, Terne Plate

Tin Plate: American Coke, per base box of 100 lb, 1.25 lb coating $6.60-$6.80; 1.50 lb coating $6.80-$7.00. Pittsburg, Calif., mill $7.35 and $7.55, respectively, for 1.25 and 1.50 lb coatings.

Electrolytic Tin Plate: Per base box of 100 lb. 0.25 lb tin, $5.80-$6.00; 0.50 lb tin, $6.00-$6.20; 0.75 lb tin, $6.20-$6.40.

Can Making Black Plate: Per base box of 100 lb. 55 to 70 lb basis weight, $5.20-$5.30; 75 to 95 lb basis weight, $5.10-$5.20; 100 to 128 lb basis weight, $5.20-$5.30. $5.75-$5.95, $5.65-$5.85, $5.75-$5.95, respectively, Pittsburg, Calif.

Holloware Enameling Black Plate: 29-gage, 4.75c per pound, except: 4.85c, Sparrows Point, Md.; 4.95c, Granite City, Ill.

Manufacturing Ternes (Special Coated): Per base box of 100 lb, $5.90-$6.00.

Roofing Ternes: Per package 112 sheets; 20 x 28 in., coating I.C. 8-lb, $15.50.

Plates

Carbon Steel Plates: 3.40c, mill, except: 3.40-3.60c, Cleveland; 3.45c, Sparrows Point, Md.; 3.60c, Pittsburgh; 3.65c, Ecorse, Mich.; 3.75c, Coatesville, Pa.; 3.95c, Claymont, Del., Conshohocken, Pa.; 4.30c, Seattle, Minnequa, Colo.; 4.56c, Houston, Tex.; 5.80c, Fontana, Calif.; 5.85c, Harrisburg, Pa.; 6.25c, Kansas City, Mo.

Floor Plates: 4.55c, mill.

Open-Hearth Alloy Plates: 4.40c, mill, except: 5.10c, Coatesville, Pa., mill.

High-Strength, Low-Alloy Plates: 5.20c mill, except: 5.10c, Coatesville, Pa.; 5.30c, Conshohocken, Pa., Sparrows Point, Md., Johnstown, Pa.; 5.65c, Ecorse, Mich., Sharon, Pa.

Shapes

Structural Shapes: 3.25c, mill, except: 3.30c, Bethlehem, Pa., Lackawanna, N. Y., Johnstown, Aliquippa, Pa.; 3.85c, Torrance, Calif.; 4.15c, Minnequa, Colo.; 4.30c, Seattle, S. San Francisco, Los Angeles; 5.75c, Fontana, Calif.

Alloy Structural Shapes: 4.05c, mill.

Steel Sheet Piling: 4.05c, mill.

High-Strength, Low-Alloy Shapes: 4.95c, mill, except: 5.05c, Bethlehem, Johnstown, Pa., Lackawanna, N. Y.

Wire and Wire Products

Wire to Manufacturers (carloads): Bright, Basic or Bessemer Wire, 4.15c, mill, except: 4.00c, Atlanta; 4.25c, Sparrows Point, Md., Kokomo, Ind.; 4.45c, Worcester, Mass.; 4.50c, Monessen, Pa., Minnequa, Colo., Buffalo; 4.70c, Portsmouth, O.; 4.80c, Palmer, Mass.; 5.10c, Pittsburg, Calif.; 5.15c, So. San Francisco; 5.40c, Shelton, Conn. One producer quotes 4.50c, Chicago base; another, 4.50c, Crawfordsville, Ind., freight equalized with Pittsburgh and Birmingham.

Basic MB Spring Wire, 5.55c, mill, except: 5.30c, Portsmouth, O.; 5.65c, Sparrows Point, Md., Monessen, Pa.; 5.85c, Worcester, Palmer, Mass., Trenton, N. J., 6.50c, Pittsburg, Calif.

Upholstery Spring Wire, 5.20c mill, except: 5.30c, Sparrows Point, Md., Williamsport, Pa.; 5.50c, Worcester, Mass., Trenton, N. J., New Haven, Conn.; 6.15c, Pittsburg, Calif.

Wire Products to Trade (carloads): Merchant Quality Wire: Annealed (6 to 8 Gage base), 4.80c, mill, except: 4.90c, Sparrows Point, Md., 4.95c, Monessen, Pa.; 5.10c, Worcester, Mass.; 5.15c, Minnequa, Colo., Kokomo, Ind.; 5.20c, Atlanta; 5.75c, So. San Francisco, Pittsburg, Calif. One producer quotes 5.15c, Chicago and Pittsburgh base; another, 5.20c. Crawfordsville, Ind., freight equalized with Pittsburgh and Birmingham.

Galvanized (6 to 8 Gage base), 5.25c, mill, except: 5.35c, Sparrows Point, Md.; 5.40c, Monessen, Pa.; 5.55c, Worcester, Mass.; 5.60c, Kokomo, Ind., Minnequa, Colo.; 5.65c, Atlanta; 6.20c, Pittsburg, So. San Francisco, Calif. One producer quotes 5.60c, Pittsburgh and Chicago base; another, 5.65c, Crawfordsville, Ind., freight equalized with Birmingham and Pittsburgh.

Nails and Staples: Standard, cement-coated and galvanized nails and polished and galvanized staples, Column 103, mill, except: 105, Sparrows Point, Md., Kokomo, Ind.; 109 Worcester, Mass.; 110 Minnequa, Colo., Atlanta; 117, Portsmouth, O.; 123, Pittsburg, Calif.; 124, Cleveland; 126, Monessen, Pa.; $5.20 per 100 pound keg, Aliquippa, Pa.; $6.75, Conshohocken, Pa., Wheeling, W. Va. One producer quotes column 109, Chicago and Pittsburgh base; another, column 113, Crawfordsville, Ind., freight equalized with Birmingham and Pittsburgh.

Woven Fence (9 to 15½ Gage, inclusive): Column 109, mill, except: 113 Monessen, Pa., Kokomo, Ind.; 116, Minnequa, Colo.; 121 Atlanta; 132, Pittsburg, Calif. One producer quotes column 113, Pittsburgh and Chicago base; another, column 114, Crawfordsville, Ind., freight equalized with Pittsburgh and Birmingham.

Barbed Wire: Column 123 mill, except: 125, Sparrows Point, Md., Kokomo, Ind.; 126 Atlanta; 128 Monessen, Pa.; 130, Minnequa, Colo.; 143, Pittsburg, Calif.; 145, So. San Francisco. One producer quotes 127, Chicago and Pittsburgh base.

Fence Posts (with clamps): Column 114, Duluth; 115, Johnstown, Pa.; 116, Moline, Ill.; 122, Minnequa, Colo.; $123.50 per net ton, Williamsport, Pa.

Bale Ties (single loop): Column 106, mill, except: 108, Sparrows Point, Md., Kokomo, Ind.; 110, Atlanta; 113 Minnequa, Colo.; 130, So. San Francisco, Pittsburg, Calif. One producer quotes column 115, Crawfordsville, Ind., freight equalized with Birmingham and Pittsburgh.

Tubular Goods

Standard Steel Pipe: Mill prices in carlots, threaded and coupled, to consumers about $200 a net ton.

	Butt Weld			Butt Weld	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅜	41½	12½	1¼ ...	46½–	24–
¼	39½	14		49	32
⅝	36	9	1½ ...	47–	24½–
½	40½–	16½ –		49½	32½
	43	24½	2	47½–	25–
¾	43½–	25½–		50	33
	46	28½	2½, 3..	48–	25½–
1	46–	23½–		50½	33½
	48½	31½	3½ & 4	44½	25

	Lap Weld		Elec. Weld		Seamless	
In.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
2	39½	20	38½	19	27–	7½–
					38½	19
2½ ..	42½–	23–	41½	22	32½–	13–
	43½	24			41½	22
3	42½–	23–	41½	22	35–	15½–
	43½	24			41½	22
3½ & 4	42½–	25–	43½	24	38½–	19–
	46½	27			43½	24
5 & 6.	42½–	23–	43½	24	38½–	19–
	44½	25			43½	24
7	....	..	....	..	43½	23

Line Steel Pipe: Mill prices in carlots to consumers about $200 a net ton.

	Butt Weld			Butt Weld	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	40½	....	1¼ ...	47–	28–
¼	38½	....		48	29
⅜	35	....	1½ ...	47½–	28½ -
½	41–	20½ –		48½	29½
	42	21½	2	48–	29–
¾	44–	24½–		49	30
	45	25½	2½ & 3	48½–	29½–
1	46½–	27½–		49½	30½
	47½	28½	3½ & 4	43½	

	Lap Weld		Elec. Weld		Seamless	
In.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
2	38½	19	37½	18	26–	6½–
					37½	18
2½ ..	41½–	23	40½	..	31½–	12–
	42½				40½	21
3	41½–	23	40½	..	34–	14½–
	42½				40½	21
3½-4..	41½–	22–	42½	..	37½–	18–
	45½	26			42½	23
5 & 6.	41½–	22	42½	..	40½–	20–
	43½	..			44½	24
8	45½	..	44½	24	41½–	21–
10 ...	45	..	44	23	44	23½
12 ...	44	..	44½	..	40½–	20
					43	22½

Standard Wrought Iron Pipe: Mill price in carlots, threaded and coupled, to consumers about $200 a net ton.

	Butt Weld			Lap Weld	
In.	Bulk.	Gal.	In.	Bulk.	Gal.
⅜...	+59½	+93	1¼..	+22	+50½
½...	+20½	+50	1½..	+15½	+43
¾...	+10½	+39	2....	+ 7½	+34
1 and			2½-3½	+ 5	+29½
1¼	+ 4½	+30	4....	List	+23½
1½..	— 1½	+26½	4½-8	+ 2	+25
2....	— 2	+26	9-12.	+12	+34½

Boiler Tubes: Net base c.l. prices, dollars per 100', mill; minimum wall thickness, cut lengths 4 to 24"; inclusive.

		Seamless		Elec. Weld	
O.D. In.	B.W. Ga.	Hot Rolled	Cold Drawn	Hot Rolled	Cold Drawn
1	13	....	13.39	13.00	13.00
1¼	13	....	15.87	13.21	15.39
1½	13	$15.05	17.71	14.60	17.18
1¾	13	17.11	20.15	16.60	19.54
2	13	19.18	22.56	18.60	21.89
2¼	13	21.37	25.16	20.73	24.40
2¼	12	23.54	27.70	22.83	26.88
2½	12	25.79	30.33	25.02	29.41
2¾	12	27.33	32.14	26.51	31.18
3	12	28.68	33.76	27.82	32.74
3¼	11	33.39	39.29	32.39	38.11
3½	11	35.85	42.20	34.78	40.94
4	10	44.51	52.35	43.17	50.78
4½	9	58.99	69.42	....	....
5	9	68.28	80.35	....	....
6	7	104.82	123.33	....	....

Rails, Supplies

Rails: Standard, over 60-lb: $3.20 per 100 lb. mill.

Light (billet): $3.55-$4.25 per 100 lb, mill.

Light (rail steel): $4.70 per 100 lb., Williamsport, Pa.

Railroad Supplies: Track bolts, treated: $8.50 per 100 lb., mill. Untreated: $8.25, mill.

Tie Plates: 4.05c mill, except: 4.20c, Pittsburg, Calif.; 4.50c, Seattle.

Splice Bars: 4.25c, mill.

Standard Spikes: 5.35c, mill, except: 5.25c, Pittsburgh.

Axles: 5.20c, mill.

Bolts, Nuts

Prices to consumers, f.o.b. midwestern plants. Sellers reserve right to meet competitors' prices, if lower. Additional discounts on carriage and machine bolts, 5 per carloads; 15 for full containers, except tire and plow bolts.

Carriage and Machine Bolts

½-in. and smaller; up to 6 in. in length	35 off
⅝ and ⅝ x 6-in. and shorter	37 off
¾-in. and larger x 6-in. and shorter	34 off
All diameters longer than 6-in.	30 off
Tire bolts	25 off
Plow bolts	47 off
Lag bolts, 6 in. and shorter	37 off
Lag bolts, longer than 6 in.	35 off

Stove Bolts

In packages, nuts separate, 58½-10 off; bulk 70 off on 15,000 of 3-in. and shorter, or 5000 over 3 in., nuts separate.

Nuts

Semifinished hexagon	A.S. Light	A.S. Reg. and Heavy
⅞-in. and smaller	41 off	.....
½-in. and smaller	.....	38 off
½-in.-1-in.	39 off	.....
⅝-in.-1-in.	.....	37 off
1⅛-in.-1½-in.	37 off	35 off
1⅝-in. and larger	34 off	28 off

Additional discount of 15 for full containers.

Hexagon Cap Screws (Packaged)

Upset 1-in. smaller by 6-in. and shorter (1020 bright)	46 off
Upset (1035 heat treated)	
⅝ and smaller x 6 and shorter	40 off
¾, ⅞, & 1 x 6 and shorter	35 off

Square Head Set Screws

Upset 1-in. and smaller	51 off
Headless, ⅛-in. and larger	31 off

Rivets

F.o.b. midwestern plants,

Structural ½-in. and larger	6.75c
7/16-in. and under	48 off

Washers, Wrought

Fob shipping point, to jobbers.....50c-$2 off

Tool Steels

Tool Steel: Cents per pound, producing plants; reg. carbon 19.00c; extra carbon 22.00c; special carbon 26.50c; oil-hardening 29.00c; high carbon-chromium 52.00c; chrome hot work, 29.00c.

W	Cr	V	Mo	Co	Base Per lb
18	4	1	...	...	90.50c
18	4	2	...	...	102.5c
18	4	3	...	...	114.5c
18	4	2	...	9	168.5c
1.5	4	1	8.5	...	65.00c
6.4	4.5	1.9	5	...	69.50c
6	4	3	6	...	88.00c

RAW MATERIAL AND FUEL PRICES

Minimum delivered prices do not include 3 per cent federal tax

Pig Iron

Per Gross Ton

	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa., furnace	$48.00	$48.50	$49.00	$49.50
Newark, N. J., del.	50.39	50.89	51.39	51.89
Brooklyn, N. Y., del.	....	52.40	52.90	....
Philadelphia, del.	50.17	50.67	51.17	51.67
Birmingham, furnace	42.88	43.38	....	....
Cincinnati, del.	....	49.09	....	....
Buffalo, furnace	44.00	44.00	44.50	45.00
Boston, del.	52.42	52.42	52.92	....
Rochester, del.	46.22	46.22	46.72	47.22
Syracuse, del.	47.025	47.025	47.525	48.025
Chicago, furnace	42.50-43.00	43.00-43.50	43.50	44.00
Milwaukee, del.	44.22-44.72	44.72-45.22	45.22	45.72
Muskegon, Mich., del.	....	49.65-50.15	50.15	....
Cleveland, furnace	43.00	43.50	43.50	44.00
Akron, del.	45.17	45.67	45.67	46.17
Duluth, furnace	43.00	43.50	44.00	44.50
Erie, Pa., furnace	42.50	43.00	43.50	44.00
Everett, Mass., furnace	....	48.75	49.25	....
Geneva, Utah, furnace	43.00	43.50	....	....
Seattle, Tacoma, Wash., del.	....	50.63	....	....
Portland, Oreg., del.	....	50.63	....	....
Los Angeles, San Francisco.	50.13	50.63	....	....
Granite City, Ill., furnace	47.90	48.40	48.90	....
St. Louis, del.	48.65	49.15	49.65	....
Ironton, Utah, furnace	....	43.50	....	....
‡Neville Island, Pa., furnace	46.00	46.50	46.50	47.00
Pittsburgh, del., N.&S. Sides	47.08	47.58	47.58	48.08
Pittsburgh (Carnegie), furnaces	43.00	43.50	43.50	44.00
Sharpsville, Pa., furnace	43.00	43.50	43.50	44.00
Steelton, Pa., furnace	48.00	48.50	49.00	49.50
Struthers, O., furnace	42.50	....	....	....
Swedeland, Pa., furnace	50.00	50.50	51.00	....
Toledo, O., furnace	42.50	43.00	43.50	44.00
Cincinnati, del.	47.05	47.55	....	....
Youngstown, O., furnace	43.00	43.50	43.50	44.00
Mansfield, O.	46.87	47.37	47.37	47.87

‡ To Neville Island base add: $0.86 for McKees Rocks, Pa.; $1.31 Lawrenceville, Homestead, McKeesport, Monaco; $1.73 Verona; $1.94 Brackenridge; $1.08 to Ambridge and Aliquippa.

Blast Furnace Silvery Pig Iron

6.00-6.50 per cent Si (base)	$56.50		
6.51-7.00	57.75	9.01- 9.50	64.00
7.01-7.50	59.00	9.51-10.00	65.25
7.51-8.00	60.25	10.01-10.50	66.50
8.01-8.50	61.50	10.51-11.00	67.75
8.51-9.00	62.75	11.01-11.50	69.00

Fob Jackson, O., per gross ton. Buffalo furnace $1.25 higher.

Bessemer Ferrosilicon

Prices same as for blast furnace silvery iron, plus $1 per gross ton.

Electric Furnace Silvery Pig Iron: Si 14.01-14.50%, $81.75 furnace, Niagara Falls; $81 open-hearth and $82 foundry grade, Keokuk, Iowa. Add $1 a ton for each additional 0.5% Si to 18%; 50c for each 0.5% Mn over 1%; $1 a ton for 0.045% max. phos.

Charcoal Pig Iron

Semi-cold blast, low phosphorus. Fob furnace, Lyles, Tenn. .....$62 (For higher silicon iron a differential over and above the price of base grade is charged as well as for the hard chilling iron, Nos. 5 and 6.)

Low Phosphorus

Steelton, Pa., $54; Buffalo, Troy, N. Y., $50. Philadelphia, $56.81 delivered.

Intermediate phosphorus, Central furnace, Cleveland, $48.00.

Differentials

Prices are subject to following differentials:

Silicon: An additional charge of 50 cents a ton for each 0.25 per cent silicon in excess of base grade (1.75% to 2.25%).

Phosphorus: A reduction of 38 cents a ton for phosphorus content of 0.70 per cent and over.

Manganese: An additional charge of 50 cents a ton for each 0.50 per cent, or portion thereof, manganese in excess of 1%.

Nickel: An additional charge for nickel content as follows: Under 0.50%, no extra; 0.50% to 0.74%, inclusive, $2 a ton; for each additional 0.25% nickel, $1 a ton.

Fluorspar

Metallurgical grade, fob shipping point, in Ill., Ky., net tons, carloads, effective CaF_2 content, 70% or more, $35; less than 60% $32.

Metallurgical Coke

Price per Net Ton

Beehive Ovens

Connellsville, furnace	$13.50-15.50
Connellsville, foundry	16.00-18.00
New River, foundry	16.50
Wise county, foundry	15.35
Wise county, furnace	14.60

Oven Foundry Coke

Kearney, N. J., ovens	$21.50
Chicago, ovens	20.40
Terre Haute, ovens	21.00
Milwaukee, ovens	21.15
New England, del.	22.75
Birmingham, del.	17.86
Indianapolis, ovens	20.85
Cincinnati, del.	21.40
Ironton, O., ovens	18.25
Erie, Pa., del.	22.45
Painesville, O., ovens	20.90
Cleveland, del.	22.45
Buffalo, del.	23.10
Detroit, del.	21.65
Philadelphia, ovens	20.55
Swedeland, Pa., ovens	20.50
Portsmouth, O., ovens	19.25

Coal Chemicals

Spot, cents per gallon, ovens

(Price effective as of Aug. 5)

Pure benzol	20.00
Toluol, one degree	20.50-26.50
Toluol, two degrees	23.00-26.50
Industrial xylol	20.50-26.50

Per pound, ovens

Phenol, 40 (car lots, returnable drums)	13.00
Do., less than carlots	13.75
Do., tank cars	12.00
Naphthalene flakes, balls, bbl to jobbers, "household use"	12.00

Per ton, bulk, ovens

Sulphate of ammonia	$45.00

Refractories

(Prices per 1000 brick, fob plant)

Fire Clay Brick

Super Duty: St. Louis Vandalia, or Farber, Mo., Olive Hill, Ky., Clearfield, or Curwensville, Pa., $100.

High-Heat Duty: Salina, Pa., $85; Woodbridge, N. J., St. Louis, Farber, or Vandalia, Mo., West Decatur, Orviston, Clearfield, Beach Creek, or Curwensville, Pa., Olive Hill, Hitchins, Haldeman, or Ashland, Ky., Troup, or Athens, Tex., Stevens Pottery, Ga., Portsmouth, or Oak Hill, O., $80.

Intermediate-Heat Duty: St. Louis, or Vandalia, Mo., West Decatur, Orviston, Beach Creek, or Clearfield, Pa., Olive Hill, Hitchins, Haldeman, or Athens, Ky., Troup, Tex., Stevens Pottery, Ga., or Portsmouth, O., $74.

Low-Heat Duty: Oak Hill, or Portsmouth, O., Clearfield, Pa., Bessemer, Ala., $66.

Ladle Brick

Dry Press: $55, Freeport, Merill Station, Clearfield, Pa.; Chester, New Cumberland, W. Va.; Irondale, Wellsville, O.; Goose Lake, Ill.

Wire Cut: $53, Chester, New Cumberland, W. Va.; Wellsville, O.

Malleable Bung Brick

St. Louis, Mo., Olive Hill, Ky., $83; Beach Creek, Pa., $73.

Silica Brick

Mt. Union, Claysburg, or Sproul, Pa., Ensley, Ala., $80; Hays, Pa. $85; Joliet or Rockdale, Ill., $89; Lehi, Utah, Los Angeles, $95.

Eastern Silica Coke Oven Shapes: Claysburg, Mt. Union, Sproul, Pa., $80.

Illinois Silica Coke Oven Shapes: Joliet or Rockdale, Ill., $81.

Basic Brick

(Base prices per net ton; f.o.b. works, Baltimore or Chester, Pa.)

Chrome brick or chemical-bonded chrome brick, $69, magnesite brick, $91; chemical-bonded magnesite, $80.

Magnesite

(Base prices per net ton, fob works, Chewelah, Wash.)

Domestic dead-burned, ⅜" grains: Bulk, $31; single paper bags, $35.50.

Dolomite

(Base prices per net ton)

Domestic, dead-burned bulk: Billmeyer, Blue Bell, Williams, Plymouth Meeting, Pa., Millville, W. Va., Narlo, Millersville, Martin, Gibonsburg, Woodville, O., $11.85; Thornton, McCook, Ill., $11.95; Dolly Siding, Bonne Terre, Mo., $12.05.

Ores

Lake Superior Iron Ore

Gross ton, 51½% (natural) Lower Lake Ports

(Any increase or decrease in R. R. freight rates, dock handling charges and taxes thereon effective after Apr. 1, 1948, are for buyer's account.)

Old range bessemer	$6.60
Old range nonbessemer	6.45
Mesabi bessemer	6.35
Mesabi nonbessemer	6.20
High phosphorus	6.20

Eastern Local Ore

Cents, units, del. E. Pa.

Foundry and basic 56.62% contract	15.25

Foreign Ore

Cents per unit, cif Atlantic ports

Swedish basic, 60 to 68%	14.50
Brazil iron ore, 68-69%	18.50

Tungsten Ore

Wolframite and scheelite per short ton unit, duty paid	$26-$28

Manganese Ore

48-50%, duty paid, fob cars, New York, Philadelphia, Baltimore, Norfolk, Va., Mobile, Ala., New Orleans, 67.60c-72.60c.

Chrome Ore

Gross ton fob cars, New York, Philadelphia, Baltimore, Charleston, S.C., plus ocean freight differential for delivery to Portland, Oreg., and/or Tacoma, Wash. (S S paying for discharge; dry basis, subject to penalties if guarantees are not met.)

Indian and African	
48% 2.8:1	$37.50
48% 3:1	39.00
48% no ratio	31.00
South African (Transvaal)	
44% no ratio	$25.50-$26.00
45% no ratio	26.50
48% no ratio	29.00-30.00
50% no ratio	29.50-30.50
Brazilian—nominal	
44% to 2.5:1 lump	$33.65
Rhodesian	
45% no ratio	$27-$27.50
48% no ratio	30.00
48% 3:1 lump	39.00
Domestic (seller's nearest rail)	
48% 3:1	$39.00

Molybdenum

Sulphide conc., lb., Mo., cont., Mines	$0.75

WAREHOUSE STEEL PRICES

Prices, cents per pound, for delivery within switching limits, subject to extras.

	SHEETS			STRIP		BARS				PLATES	
	H-R 10 Ga.	C-R 17 Ga.	Gal. *10 Ga.	†H-R	†C-R	H-R Rds. ⅜" to 3"	C-F Rds. ½" & up	H-R Alloy **4140	Standard Structural Shapes	Carbon ⅜"-¾"	Floor ¾" & Thicker
Boston (city)	5.84	6.64	7.84	6.04	6.90	5.69	6.39	8.24-9.74	5.54	5.89	7.34
Boston (c'try)	5.69	6.49	7.69	5.89	6.75	5.54	6.24	8.09-9.59	5.39	5.74	7.19
New York (city)	5.73-5.80	6.73	7.74-7.83	6.08-6.28	...	5.83	6.58	8.22	5.52-5.78	5.98	7.48
New York (c'try)	5.53-5.60	6.53	7.54-7.63	5.88-6.08	...	5.63	6.38	...	5.32-5.58	5.78	7.28
Phila. (city)	5.50-5.86	6.61-6.81	7.42-7.62	5.46-5.81	...	5.57-5.65	6.31	7.94	5.24-5.40	5.52-5.65	6.73-7.16
Phila. (c'try)	5.35-5.71	6.46-6.66	7.27-7.47	5.31-5.66	...	5.42-5.50	6.16	7.79	5.09-5.25	5.37-5.50	6.58-7.01
Balt. (city)	5.43†	6.33	7.13	5.49	...	5.54	...	...	5.48	5.68	7.13
Balt. (c'try)	5.28†	6.18	6.98	5.34	...	5.39	...	...	5.33	5.53	6.98
Norfolk, Va.	5.75	...	...	...	...	6.00	7.00	...	6.00	6.00	7.50
Wash. (w'house)	5.81	...	...	5.87	...	5.92	...	...	5.86	6.06	7.51
Buffalo (del.)	5.20-5.25	5.95-6.00	7.75	5.70	6.50	5.35	6.05	9.50	5.25	5.60	7.70
Buff. (w'house)	5.05-5.10	5.80-5.85	7.60	5.55	6.35	5.20	5.90	9.40	5.10	5.45	7.55
Pitts. (w'house)	4.85-5.00§	5.75-5.85[3]	7.00-7.05	5.00-5.35	5.95-6.00	4.90-5.10	5.65	7.65	4.90-5.15	5.05-5.25	6.55
Det. (w'house)	5.40§	6.30	7.60	5.40	...	5.45	6.17	8.12	5.45	5.65	7.10
Cleveland (del.)	5.13-5.29	6.00-6.29	7.34-7.49	5.17-5.69	6.85	5.30-5.34	6.05-6.10	7.94-8.29	5.34-5.60	5.50-5.54	6.95-6.99
Cleve. (w'hse)	4.98-5.75	5.75-6.14	7.19-7.85	5.02-5.54	6.70	5.15-5.19	5.90-5.95	7.79-8.14	5.19-5.45	5.35-5.39	6.80-6.84
Cincin. (w'hse)	5.26	6.11	7.60	5.52	6.07	5.52	6.07	...	5.37	5.61	6.91
Chicago (city)	5.20	5.90‡[4]	7.20	5.00	6.30	5.05	5.85	7.80[9]	5.05	5.25	6.70
Chicago (w'hse)	5.05	5.75‡[4]	7.05	4.85	6.15	4.90	5.70	7.65[9]	4.90	5.10	6.55
Milwaukee (city)	5.37	6.07‡[3]	7.37	5.17	6.47	5.22	6.02	7.97[9]	5.22	5.42	6.87
St. Louis (del.)	5.34§	6.24[8]	7.44	5.34	6.64	5.39	6.19[12]	6.64	5.39	5.59	7.04
St. L. (w'hse)	5.19§	6.09[8]	7.29	5.19	6.49	5.24	6.04[12]	9.49	5.24	5.44	6.89
Birm'ham (city)	5.20§	...	6.60	5.20	...	5.15	6.66	...	5.15	5.40	7.41
Birm'ham (c'try)	5.05§	...	6.45	5.05	...	5.00	6.51	...	5.00	5.25	7.26
Omaha, Nebr.	6.07	...	9.33	6.07	...	6.12	6.92	...	6.12	6.32	7.77
Los Ang. (city)	6.55§	8.05	8.20†	6.75	9.50	6.20	8.00-8.50	...	6.70	6.40	8.15
Los Angeles (w'house)	6.40§	7.90	8.05†	6.60	9.35	6.05	7.85-8.35	...	6.55	6.25	8.00
San Francisco	5.95[21]	7.15	8.05	6.75[21]	8.25[15]	5.90[21]	7.55	10.20‡‡	5.90	7.60	8.10
Seattle-Tacoma	6.35[17]	7.90[8]	8.40	6.70[17]	...	6.20[17]	8.15[1]	9.45[2]	6.30[17]	6.35[17]	8.40[17]

Base Quantities: 400 to 1999 lb except as noted: Cold-rolled strip, 2000 lb and over; cold finished bars, 1000 lb and over; galvanized sheets, 450 to 1499 lb; [1]—1500 lb and over; [2]—1000 to 4999 lb; [3]—450 to 39,999 lb; [4]—three to 24 bundles; [5]—450 to 1499 lb; [6]—400 to 14,999 lb; [8]—400 to 1499 lb; [9]—1000 to 1999 lb; [11]—1000 to 39,999 lb; [12]—1000 lb and over; [15]—2000 lb and over; [17]—300 to 999 lb; [18]—1500 to 1999 lb; [19]—1500 to 39,999 lb; [20]—400 to 3999 lb; [21]—400 lb and over; [22]—500 to 1499 lb; [23]—Price (but not other price in range) applies to any and all quantities.

* Includes gage and coating extra, except Birmingham (coating extra excluded); † does not include gage extras; ‡ 15 gage; § 18 gage and heavier; ** as rolled; †† add 0.40 for sizes not rolled in Birmingham.

PRICES OF LEADING FERROALLOYS PRODUCTS

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si) Carlot per gross ton, $57, Palmerton, Pa., $56, Pittsburgh and Chicago; (16% to 19% Mn.) $1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.). Carload, lump, bulk $160 per gross ton of alloy, c.l., packed, $172; gross ton lots, packed, $187; less gross ton lots, packed, $204; fob Alloy, W. Va., Niagara Falls, N. Y.; or Welland, Ont. Base price, f.o.b. Birmingham furnaces, $162. Shipment from Pacific Coast warehouses on one seller add $31 to above prices, fob Los Angeles, San Francisco, Portland, Oreg. Shipment from Chicago Warehouse, gross ton lots, $201; less gross ton lots, $218 fob Chicago, Ill. Add or subtract $2 for each 1%, or fraction thereof, of contained manganese over 82% and under 78%.

Low-Carbon Ferromanganese, Regular Grade: (Mn 80-85%). Carload, lump, bulk, max. 0.10% C, 24.75c per lb of contained Mn, carload packed 26.0c, ton lot 27.1c, less ton 28.3c. Delivered. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max. 0.50% C, and 4.5c for max. 0.75% C—max 7% Si. **Special Grade:** (Mn 90% approx., C 0.07% max., P 0.06% max.). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%. C 1.5% max., Si 1.5% max.). Carload, lump, bulk 18.15c per lb of contained Mn, carload packed 18.9c, ton lot 20.0c, less ton 21.2c. Delivered. Spot, add 0.25c.

Manganese Metal: (Mn 96% min., Fe 2% max., Si 1% max., C 0.20% max.). Carload, 2" x D, packed 35.5c per lb of metal, ton lot 37c, less ton 39c. Delivered. Spot, add 2c.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 8.6c per lb of alloy, carload packed, 9.35c, ton lot 10.25c, less ton 11.25c. Freight allowed. For 2.0% C grade, Si 15-17.5%, deduct 0.2c from above prices. Spot, add 0.25c.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l., lump, bulk 20.5c per lb of contained Cr, c.l., packed 21.4c, Ton lot 22.55c, less ton 23.95c. Delivered. Spot, add 0.25c.

"SM" High-Carbon Ferrochrome: (Cr 60-65%, Si 4-6%, Mn 4-6%, C 4-6%). Add 1.1c to high-carbon ferrochrome prices.

Foundry Ferrochrome: (Cr 62-66%, C 5-7%). Contract, c.l., 8MxD, bulk 22.0c per lb. of contained Cr, c.l., packed 22.9c, ton lot 24.25c, less ton 26.0c. Delivered. Spot, add 0.25c.

> Quotations on ferroalloys include advances scheduled to become effective Oct. 1 and which are detailed in the article appearing on page 177 of Sept. 13 issue. For prices on these products prevailing currently and until effective date of the increases, refer to page 155 of the Sept. 6 issue of STEEL.

Low-Carbon Ferrochrome: (Cr 67-72%). Contract, carload, lump, bulk, max. 0.03% C 31.85c per lb of contained Cr, 0.04% C 29.75c, 0.05% C 29.25c, 0.06% C 28.75c, 0.10% C 28.5c, 0.15% C 28.0c, 0.20% C 27.75c, 0.50% C 27.5c, 1% C 27.25c, 2% C 27.0c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

"SM" Low-Carbon Ferrochrome: (Cr 62-66%, Si 4-6%, Mn 4-6%, add C 1.25% max.). Contract, carload, lump, bulk 27.75c per lb of contained chromium, carload, packed 28.85c, ton lot 30.05c, less ton 31.85c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome, Nitrogen Bearing: Add 5c to 0.10% C low-carbon ferrochrome prices for approx. 0.75% N. Add 5c for each 0.25% of N above 0.75%.

Chromium Metal: (Mn 97% Cr and 1% Fe). Contract, carload, 1" x D; packed, max. 0.50% C grade, $1.03 per lb of contained chromium, ton lot $1.05, less ton $1.07. Delivered. Spot, add 5c.

SILICON ALLOYS

20-30% Ferrosilicon: Contract, carload, lump, bulk, 16.50c per lb of contained Si, fob Niagara Falls, N. Y.

50% Ferrosilicon: Contract, carload, lump, bulk, 10.5c per lb of contained Si, carload packed 12.1c, ton lot 13.55c, less ton 15.2c. Delivered. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Contract, carload, lump, bulk, 13.0c per lb of contained Si carload packed 14.3c, ton lot 15.45c, less ton 16.7c. Delivered. Spot, add 0.3c.

85% Ferrosilicon: Contract, carload, lump, bulk 14.65c per lb of contained Si carload packed 15.9c, ton lot 16.9c, less ton 18.05c. Delivered. Spot, add 0.25c.

Low-Aluminum 85% Ferrosilicon: (Al 0.50% max.). Add 0.7c to 85% ferrosilicon prices.

90% Ferrosilicon: Contract, carload, lump, bulk, 16.5c per lb of contained Si, carload packed 17.7c, ton lot 18.65c, less ton 19.7c. Delivered. Spot, add 0.25c.

Low-Aluminum 90-95% Ferrosilicon: (Al 0.50% max.) Add 0.7c to above 90-95% ferrosilicon prices.

Silicon Metal: (Min. 97% Si and 1% max. Fe.). C.l., lump, bulk, regular 19.0c per lb of Si c.l. packed 20.2c, ton lot 21.1c, less ton 22.1c. Add 1.5c for max. 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing min. 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe).

(*Please turn to Page* 154)

Metal Supplies Remain Tight

Producers attending American Mining Congress believe prices of copper, lead and zinc will remain at high levels for probably two more years

New York—Supplies of lead, zinc and copper are lagging far behind demand, according to metal producers who attended the annual convention of the American Mining Congress in San Francisco last week. They ascribed the situation to industrial needs deferred during the last war and the threat of another world conflict. The mine owners declared it will take two years, maybe more, for them to catch up with orders. This means, they added, that prices of these key metals probably will remain at present high levels.

While building up government-owned stockpiles of strategic metals is necessary, it is difficult to understand how significant tonnages of the major metals can be acquired in the near future without seriously upsetting the civilian economy, Endicott R. Lovell, president, Calumet & Hecla Consolidated Copper Co., said in his address on the subject of subsidies for marginal mines, stockpiles, and incentives for exploration and development.

Copper — According to trade reports, an allocations program may be adopted for the purpose of augmenting the government's stockpile of copper. While some purchases have been made for that purpose, the actual buying is not measuring up to the goal at this time. Supplies remain very tight and consumers have not been able to contract for all the October copper they desire. Prices held firm last week.

Brass and Bronze Ingots—White Bros. Smelting Corp., Philadelphia, recently announced a ½-cent per pound reduction on brass ingots, excepting the No. 1 yellow grade which held unchanged. The price reduction was attributed to an easier scrap market.

Lead—St. Joseph Lead Co. is planning to start operations at its southeast Missouri properties this week following a 10-week strike. Metal will not start to flow in large volume to customers for several more weeks, however. Domestic supplies will be augmented soon by imports of metal from Burma and Rhodesia. On the other hand, it is reported here that Belgium has placed an embargo on the exports of pig lead which will apply only on new sales. In 1947, the smelter production of lead in that country amounted to 44,665 tons compared with a home consumption of 28,000 tons.

Zinc—New Jersey Zinc Co., has announced that its present prices for zinc pigments will remain in effect until Dec. 31, 1948.

The Economic Cooperation Administration has announced a procurement authorization for zinc in the amount of $2,700,000 for the United Kingdom to be supplied by the United States.

Undertone of the domestic market remained firm last week.

Tin—Exports of Bolivian tin ores and concentrates in July were the equivalent of 3344 metric tons of fine tin, compared with 2964 tons in June and 2569 tons in July, 1947. World tin production for the first half of 1948 is estimated by the International Tin Study Group at 72,000 tons, compared with 50,400 tons during the first half of 1947. World consumption during the first half of this year is estimated at 69,600 tons against 64,100 tons in the first half and 68,300 tons in the second half of last year. This is the first time since 1941 that world production of tin has exceeded the world's regulated consumption with the omission of the production in Malaya, Netherlands East Indies, Siam, Japan and French Indo China during 1942-44 when these territories were under Japanese domination, and Japanese, German and Italian consumption during the same years.

World stocks of tin and tin in concentrates (exclusive of the United States Munitions Board's stocks) are estimated to have been 138,000 tons as of May 31, 1948, compared with 178,800 tons at the beginning of 1942 and 69,500 tons at the beginning of 1939.

Aluminum — Secondary aluminum ingot smelters have lowered prices ½ to 1-cent a pound. Demand for secondary ingot has been spotty since July, when prices were raised 1 to 1½-cents, according to some producers. Consumers bought heavily at that time and have been drawing on reserves recently. Aluminum scrap, however, is in short supply, with the higher grades being almost impossible to obtain. Demand for primary aluminum continues active with price tone firm.

Manganese Ore Shipments Soar

Washington — Shipments of manganese ore from mines and mills during the second quarter 1948 were more than double those of the first quarter due to the opening of the Great Lakes shipping season, according to the Bureau of Mines. Output of ore containing 35 per cent or more manganese during the second quarter continued at about the first quarter level and amounted to 32,000 short tons, shipments were 40,900 tons and stocks of shipping-grade ore on hand at mines and mills at the end of the period totaled 14,100 tons. During the first quarter production and shipments amounted to 32,600 tons and 16,400 tons, respectively, and end stocks were 23,000 tons. Most of the ore shipped during the second quarter consisted of nodules from the operations of the Anaconda Copper Mining Co., Anaconda, Mont.; battery-grade ore was shipped from the Philipsburg district, and some metallurgical ore was produced in Arizona and Arkansas.

Production and shipments of manganiferous and ferruginous manganese ore, including grades from 5 to 35 per cent manganese, totaled 386,800 short tons and 384,700 tons, respectively, during the second quarter. In the first period the comparable figures were only 24,200 tons and 23,800 tons, respectively. These large increases came from mines in Crow Wing county, Minnesota, which operate only during the summer months. Relatively small shipments of this material were made from Montana and New Mexico during the second quarter.

Consumption of manganese ore for metallurgical purposes during the second quarter of 1948 totaled 345,557 short tons compared with 368,204 tons during the first quarter; most of this ore was used in the manufacture of ferromanganese.

June Aluminum Output Drops

Washington — Output of primary aluminum in June totaled 48,557 short tons, a decline of over 12 per cent from the postwar record of 55,450 tons established in May, accordingto the Bureau of Mines. Much of the decrease in production was due to the shorter month, but part of the decline was caused by flood conditions in the Columbia river valley. Reynolds' Troutdale plant was closed entirely on June 2 because of danger from a weakened dike, and was just resuming operations at the end of the month. Reynolds' Longview plant and Aloca's Vancouver plant were threatened also, but managed to maintain operations. Stocks of pig aluminum at the reduction plants again increased, principally because of the difficulty of shipping from one of the flood-bound plants.

Silver Brazing Saving Tools

Washington — In a period of high demand for all kinds of goods and of scarcities and delays when there is need for replacing broken machinery or tools, silver brazing alloys are saving the day along many assembly lines, according to the Silver Users Association, this city.

An example is cited. A milling cutter breaks in two along its length. It weighs about eight pounds; cost, $60. But it may be several weeks before a replacement can be delivered. Welding is out as a repair method because its extreme heat would distort this tool and otherwise harm its cutting abilities.

A few cents worth of silver brazing alloy puts the cutter back on the job. It is applied carefully between the broken parts. These are then baked in an oven at 1175 degrees—a temperature which is quite "cool" and harmless to the tool. Melting, the silver alloy has "water-like" flow and capillary attraction pulls it into every irregularity of the roughly broken edges.

The rejoined cutting tool stands up under its usual hard usage. Thousands of broken tools which a few years ago would have been junked are back on the job, making the many things we want, because of the easy application and great strength of silver brazing alloys.

NONFERROUS METAL PRICES

(Cents per pound, carlots, except as otherwise noted)

Copper: Electrolytic, 23.50c, Conn. Valley; Lake, 23.62½c, Conn. Valley.

Brass Ingot: 85-5-5-5 (No. 115) 22.00c; 88-10-2 (No. 215) 31.00c; 80-10-10 (No. 305) 27.25c; No. 1 yellow (No. 405) 17.50c.

Zinc: Prime western 15.00c, brass special 15.25c, intermediate 15.50c, East St. Louis; high grade 16.00c, delivered.

Lead: Common 19.30-19.35c, chemical and corroding 19.40c, St. Louis.

Primary Aluminum: 99% plus, ingots 16.00-17.00c, pigs 15.00-16.00c. Base prices for 10,000 lb and over, fob shipping point, freight allowed.

Secondary Aluminum: Piston alloy (No. 122 type) 23.00-24.50c; No. 12 foundry alloy (No. 2 grade) 22.75-24.00c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 23.50-24.50c; grade 2, 22.50-24.00c; grade 3, 23.50c; grade 4, 21.00-23.00c. Prices include freight at carload rate up to 75 cents per 100 lb.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over, 20.50c, fob Freeport, Tex.

Tin: Grade A, 99.8% or higher (including Straits) $1.03; grade B, 99.8% or higher, not meeting specifications for grade A, with 0.05% max. arsenic, $1.028; grade C, 99.65-99.79%, incl., $1.024; 99.5-99.649% $1.004, grade F, 98-98.999% $1.015 for tin content. Prices are ex-dock, New York, in 5-ton lots.

Antimony: American 99-99.8% and over but not meeting specifications below, 35.00c; 99.8% and over (arsenic 0.05% max.; other impurities, 0.1% max.) 35.50c, fob Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 40.00c; 25-lb pigs, 42.50c; shot nom.; "XX" nickel shot, 43.50c; "F" nickel shot or ingots, for addition to cast iron, 40.50c. Prices include import duty.

Mercury: Open market, spot, New York $75-$77 per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, $24.50 per lb contained Be.

Cadmium: "Regular" straight or flat forms, $1.90, del.; special or patented shapes, $2.

Cobalt: 97-98%, $1.65 per lb for 550 lb (keg); $1.67 per lb for 100 lb (case); $1.73 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York, 75.25c per ounce.

Platinum: $93-$96 per ounce.

Palladium: $24 per troy ounce.

Iridium: $110-$120 per troy ounce.

Titanium (sponge form): $5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Base prices, cents per pound, fob mill)

Sheet: Copper 37.18; yellow brass 33.75; commercial bronze, 95%, 37.11; 90%, 36.63; red brass, 85%, 35.64; 80%, 35.16; best quality, 34.63; nickel silver, 18%, 46.41; phosphor-bronze, grade A, 5%, 56.05.

Rods: Copper, hot rolled 33.03; cold drawn 34.28; yellow brass, free cutting, 33.44; commercial bronze, 95% 36.80; 90% 36.32; red brass, 85% 35.33; 80% 34.85.

Seamless Tubing: Copper 37.22; yellow brass 36.76; commercial bronze 90% 39.29; red brass 85% 38.55; 80% 38.07.

Wire: Yellow brass 34.04; commercial bronze, 95% 37.40; 90% 36.92; red brass, 85% 35.93, 80% 35.45; best quality brass 34.92.

Copper Wire: Bare, soft, fob eastern mills, c.l. 29.42½c, l.c.l. 29.92½-30.05c; weatherproof, fob eastern mills, c.l. 29.60-29.85c, l.c.l. 30.35c; magnet, delivered, c.l. 32.75-33.50c, 15,000 lb or more 33.00-33.75c, l.c.l. 33.50-34.25c.

ALUMINUM

Sheets and Circles: 2c and 3c mill finish c.l.

Thickness Range, Inches	Widths or Diameters, In., Incl.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	25.9	...	...
0.135-0.096	12-48	26.4	...	...
0.095-0.077	12-48	26.9	25.0	28.6
0.076-0.068	12-48	27.5	25.2	28.8
0.067-0.061	12-48	27.5	25.2	28.8
0.060-0.048	12-48	27.7	25.4	29.1
0.047-0.043	12-48	28.1	25.6	29.4
0.042-0.038	12-48	28.1	25.6	29.4
0.037-0.030	12-48	28.5	26.0	29.9
0.029-0.024	12-48	28.9	26.3	30.3
0.023-0.019	12-36	29.5	26.7	30.8
0.018-0.017	12-36	30.1	27.3	31.6
0.016-0.015	12-36	30.8	27.9	32.5
0.014	12-24	31.7	28.7	33.6
0.013-0.012	12-24	32.6	29.4	34.5
0.011	12-24	33.6	30.3	35.7
0.010-0.0095	12-24	34.6	31.3	37.0
0.009-0.0085	12-20	35.8	32.4	38.5
0.008-0.0075	12.20	37.1	33.6	40.1
0.007	12-18	38.5	34.9	41.9
0.006	12-18	40.0	36.2	46.0

* Minimum length, 60 inches. † Maximum diameter, 24 inches.

Screw Machine Stock: 5000 lb and over.

Diam. (in.) or distance across flats	—Round— R317-T	17S-T	—Hexagonal— R317-T	17S-T
0.125	45.0	47.0	...	...
0.156-0.203	38.5	40.0	...	...
0.219-0.313	35.5	37.0	...	...
0.344	34.0	36.00	...	...
0.375	33.0	35.5	42.5	43.0
0.406	33.0	35.5	...	...
0.438	33.0	35.5	42.5	43.0
0.469	33.0	35.5	...	...
0.500	33.0	35.5	42.5	43.0
0.531	33.0	35.5	...	...
0.563	33.0	35.5	40.5	40.5
0.594	33.0	34.5	...	...
0.625	33.0	35.5	40.5	40.5
0.656	33.0	35.5	...	...
0.688	33.0	35.5	40.5	40.5
0.750-1.000	32.0	34.5	37.0	38.0
1.063	32.0	34.5	35.5	36.5
1.125-1.500	31.0	33.5	35.5	36.5
1.563	31.0	33.5	...	35.5
1.625	30.0	32.5	34.5	35.5
1.688-2.000	30.0	32.5	...	...
2.125-2.500	29.5	31.5	...	...
2.625-3.375	28.5	30.5	...	...

LEAD

(Prices to jobbers, fob Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more, $23.25 per cwt.; add 50c per cwt., 10 sq ft to 140 sq ft; $1.25, less than 10 sq ft; $1, circles and segments. Pipe: Full coils, $22.50 per cwt; cut coils, $22.75. Traps and Bends: List price plus 70%.

ZINC

Sheets, 19.50-20.00c, fob mill, 36.00 lb and over. Ribbon zinc in coils, 18.25c-19.00c, fob mill, 36,000 lb and over. Plates, not over 12-in., 17.25c; over 12-in., 18.25c.

NICKEL

(Base prices, fob mill.)

Sheets, cold-rolled, 60.00c. Strip, cold-rolled 66.00c. Rods and shapes, 56.00c. Plates 58.00c. Seamless tubes, 89.00c.

MONEL

(Base prices, fob mill.)

Sheets, cold-rolled 47.00c; Strip, cold-rolled, 50.00c. Rods and shapes, 45.00c. Plates, 46.00c. Seamless tubes, 80.00c. Shot and blocks, 40.00c.

MAGNESIUM

Extruded Rounds, 12 in. long, 1.312 in. in diameter, less than 25 lb. 52.00-56.00c; 25 to 99 lb, 42.00-46.00c; 100 lb to 4000 lb., 35.00-36.00c.

Plating Materials

Chromic Acid: 99.9%, flake, fob Philadelphia, carloads, 26.00c; 5 tons and over 26.50c; 1 to 5 tons, 27.00c; less than 1 ton, 27.50c.

Copper Anodes: Base, 2000 to 5000 lb; fob shipping point, freight allowed: Flat untrimmed, 33.84c; oval 33.34c; electrodeposited, 31.09c; cast, 30.12c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 46.00c, fob Niagara Falls, N. Y.

Sodium Cyanide: 96-98%, ½-oz ball, in 200 lb drums, 1 to 900 lb, 16.00c; 1000 to 19,900 lb, 15.00c, fob Niagara Falls, N. Y.

Copper Carbonate: 54-56% metallic Cu; 50 lb bags, up to 250 lb, 26.25c; over 250 lb, 25.25c, fob Cleveland.

Nickel Anodes: Rolled oval, carbonized, carloads, 56.00c; 10,000 to 30,000 lb, 57.00c; 3000 to 10,000 lb, 58.00c; 500 to 3000 lb, 59.00c; 100 to 500 lb, 61.00c; under 100 lb, 64.00c; fob Cleveland. Add 1 cent for rolled depolarized.

Nickel Chloride: 100-lb kegs, 26.50c; 275-lb, or 500-lb bbl, 24.50c, fob Cleveland.

Tin Anodes: Bar, 1000 lb and over 119.00c; 500 to 999 lb, 119.50c; 200 to 499 lb, 120.00c; less than 200 lb, 121.50c; ball, 1000 lb and over, 121.25c; 500 to 999 lb, 121.75c; 200 to 499 lb, 122.25c; less than 200 lb, 123.75c, fob Sewaren, N. J.

Sodium Stannate: 25 lb cans only, less than 100 lb, to consumers 71.8c; 100 or 300 lb drums only, 100 to 500 lb, 63.6c; 600 to 1900 lb, 61.2c; 2000 to 9900 lb, 59.4c. Prices fob Sewaren, N. J.

Zinc Cyanide: 100-lb drums 39.25c, fob Cleveland; 39.00c, Detroit; 38.00c, fob Philadelphia.

Stannous Sulphate: Less than 2000 lb, in 100 lb kegs, 100.00c, in 400 lb bbl. 99.00c; more than 2000 lb, in 100 lb kegs, 99.00c, in 400 lb bbl, 98.00c.

Scrap Metals

BRASS MILL ALLOWANCES

(Based on 23.50c, Conn., for copper)

Prices in cents per pound for less than 15,000 lb fob shipping point.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	21.125	21.125	20.375
Yellow brass	18.000	17.750	17.125
Commercial Bronze			
95%	20.125	19.875	19.375
90%	19.750	19.500	19.000
Red brass			
85%	19.750	19.500	19.000
80%	19.500	19.250	18.750
Best Quality (71-79%)	19.000	18.750	18.250
Muntz Metal	17.250	17.000	16.500
Nickel, silver, 10%	19.625	19.375	9.813
Phos. bronze, A.	22.625	22.375	21.375
Naval brass	17.750	17.500	17.000
Manganese bronze	17.750	17.500	16.875

BRASS INGOT MAKERS BUYING PRICES

(Cents per pound, fob shipping point, carload lots)

No. 1 copper 19.25, No. 2 copper 18.25, light copper 17.25, composition red brass 16.00, auto radiators 13.25, heavy yellow brass 11.50, brass pipe, 12.25.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 20.00-20.25, No. 2 copper 19.00-19.25, light copper 18.00-18.25, refinery brass (60% copper), per dry copper content 18.25.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots or more)

Copper and Brass: Heavy copper and wire No. 1 17.75-18.00, No. 2 16.75-17.00, light copper 15.75-16.00, No. 1 composition red brass 13.75-14.00, No. 1 composition turnings 13.25-13.50, mixed brass turnings 8.00-8.25, new brass clippings 13.50-14.50; No. 1 brass rod turnings 10.50-11.00, light brass 7.50-8.00, heavy yellow brass 9.75-10.00, new brass rod ends 11.50-12.00, auto radiators, unsweated 11.50-12.00, cocks and faucets 11.25-11.75, brass pipe 11.00-11.50.

Lead: Heavy 17.00-17.50, battery plates 11.50, linotype and stereotype 18.00-18.50, electrotype 16.50-17.00, mixed babbitt 15.75-16.25, solder joints, 19.75-20.25.

Zinc: Old zinc 7.75-8.25, new die cast scrap 6.25-6.75, old die cast scrap 4.00-4.50.

Tin: No. 1 pewter 65.00-67.00, block tin pipe 83.00-84.00, No. 1 babbitt 51.00-54.00, siphon tops 50.00-52.00.

Aluminum: Clippings 2S 12.00-12.50, old sheets 10.00-10.50, crankcase 10.00-10.50, borings and turnings 5.50-6.00, pistons, free of struts, 10.00-10.50.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
Aug. Avg.	23.230	19.325	15.000	103.00	16.269	35.000	40.000	73.790
Sept. 1	23.50	19.30–19.350	15.000	103.00	16.00–17.000	35.000	40.000	74.750
Sept. 2	23.50	19.30–19.350	15.000	103.00	16.00–17.000	35.000	40.000	75.000
Sept. 3-23	23.50	19.30–19.350	15.000	103.00	16.00–17.000	35.000	40.000	75.250

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. E. St. Louis; Zinc, prime western, del. St. Louis; Tin, Straits, del. New York; Aluminum, primary ingots, 99%, del.; Antimony, bulk, fob Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery, unpacked; Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

OPEN MARKET PRICES, IRON AND STEEL SCRAP

Prices are dollars per gross ton, including broker's commission, delivered at consumer's plant except where noted.

PITTSBURGH

No. 1 Heavy Melt. Steel	$42.50-43.00*
No. 2 Heavy Melt. Steel	42.50-43.00*
No. 1 Busheling	42.50-43.00*
Nos. 1, 2 & 3 Bundles	42.50-43.00
Machine Shop Turnings	37.50-38.00
Mixed Borings, Turnings	37.50-38.00
Short Shovel Turnings.	39.50-40.00
Cast Iron Borings	39.50-40.00
Bar Crops and Plate	49.00-49.50
Low Phos. Steel	49.00-49.50
Heavy Turnings	39.50-40.00

Cast Iron Grades

No. 1 Cupola	65.00-66.00
Machinery Cast	72.00-73.00
Charging Box Cast	59.00-60.00
Heavy Breakable Cast.	57.00-58.00
Malleable	69.00-70.00
Brake Shoe	55.50-56.00
Clean Auto Cast	58.00-59.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.50-44.00
R.R. Malleable	75.00-80.00
Axles	55.00-56.00
Rails, Rerolling	58.00-59.00
Rails, Random Lengths	54.00-56.00
Rails, 3 ft and under	61.00-62.00
Rails, 18 in. and under	62.00-63.00
Railroad Specialties	61.50-62.00
Uncut Tires	54.50-55.00
Angles, Splice Bars	53.00-54.00

* Plus applicable freight springboard.

CLEVELAND

No. 1 Heavy Melt. Steel	$42.00-42.50*
No. 2 Heavy Melt. Steel	42.00-42.50*
No. 1 Busheling	42.00-42.50*
Nos. 1 & 2 Bundles	42.00-42.50*
Machine Shop Turnings	37.00-37.50
Mixed Borings, Turnings	36.50-38.50
Short Shovel Turnings.	38.00-38.50
Cast Iron Borings	38.00-38.50
Bar Crops and Plate	47.00-47.50
Punchings & Plate Scrap	47.00-47.50
Heavy Turnings	42.00-43.00
Alloy Free Turnings	40.00-41.00
Cut Structurals	48.50-51.50

Cast Iron Grades

No. 1 Cupola	69.00-71.00
Charging Box Cast	58.00-60.00
Stove Plate	58.00-60.00
Heavy Breakable Cast.	54.00-56.00
Unstripped Motor Blocks	58.00-60.00
Malleable	78.00-80.00
Brake Shoes	52.00-53.00
Clean Auto Cast	71.00-73.00
No. 1 Wheels	58.00-60.00
Burnt Cast	56.00-57.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.00-44.00*
R.R. Malleable	80.00-82.00
Rails, Rerolling	60.00-66.00
Rails, Random Lengths	60.00-63.00
Rails, 3 ft and under	63.00-66.00
Cast Steel	57.00-59.00
Railroad Specialties	60.00-62.00
Uncut Tires	57.00-58.00
Angles, Splice Bars	61.00-63.00

* Plus applicable freight springboard on earmarked material.

VALLEY

No. 1 Heavy Melt. Steel	$42.50-43.00*
No. 2 Heavy Melt. Steel	42.50-43.00
No. 1 Bundles	42.50-43.00
Machine Shop Turnings	37.00-39.00
Short Shovel Turnings.	39.00-39.50
Cast Iron Borings	38.50-39.00
Low Phos.	48.50-50.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.00-44.00*

* Plus applicable freight springboard.

MANSFIELD

Machine Shop Turnings	$37.50-38.00
Short Shovel Turnings.	39.50-40.00

CINCINNATI

No. 1 Heavy Melt. Steel	$42.00
No. 2 Heavy Melt. Steel	42.00
No. 1 Busheling	42.00
Nos. 1 & 2 Bundles	42.00
Machine Shop Turnings	36.00
Mixed Borings, Turnings	36.00
Short Shovel Turnings.	38.00
Cast Iron Borings	37.00

Cast Iron Grades

No. 1 Cupola Cast	63.00
Charging Box Cast	53.00
Heavy Breakable Cast.	59.00
Stove Plate	55.00
Unstripped Motor Blocks	56.00
Brake Shoes	50.00
Clean Auto Cast	63.00
Drop Broken Cast	71.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.00
R.R. Malleable	75.00
Rails, Rerolling	62.00
Rails, Random Lengths	58.00
Rails, 18 in. and under	63.00

DETROIT

(Brokers' buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$37.50-38.00
No. 1 Busheling	37.50-38.00
Nos. 1 & 2 Bundles	37.50-38.00
No. 3 Bundles	37.50-38.00
Machine Shop Turning	31.50-32.00
Mixed Borings, Turnings	31.50-32.00
Short Shovel Turnings.	32.50-33.00
Cast Iron Borings	32.50-33.00
Punchings & Plate Scrap	42.50-43.00

Cast Iron Grades

No. 1 Cupola Cast	53.00-58.00
Heavy Breakable Cast.	47.00-52.00
Clean Auto Cast	53.00-58.00

BUFFALO

No. 1 Heavy Melt. Steel	$48.00-48.50
No. 2 Heavy Melt. Steel	41.75-42.25
No. 1 Busheling	41.75-42.25
No. 1 & 2 Bundles	41.75-42.25
Machine Shop Turnings	36.75-37.25
Mixed Borings, Turnings	36.75-37.25
Cast Iron Borings	37.75-38.25
Short Shovel Turnings.	38.75-39.25
Low Phos.	49.00-50.00

Cast Iron Grades

No. 1 Cupola	65.00-67.00
Mixed Cupola	63.50-64.00
Heavy Breakable Cast.	55.00-57.00
Malleable	70.00-75.00
Clean Auto Cast	62.00-64.00

Railroad Scrap

Rails, 3 ft. and under.	61.00-62.00
Railroad Specialties	60.00-61.00

PHILADELPHIA

No. 1 Heavy Melt. Steel	$45.00-46.00
No. 2 Heavy Melt. Steel	41.50
No. 1 Busheling	41.50
Nos. 1 & 2 Bundles	41.50
No. 3 Bundles	39.50
Machine Shop Turnings	37.50
Mixed Borings, Turnings	37.50
Short Shovel Turnings.	38.50
Bar Crop and Plate	50.00-51.00
Punchings & Plate Scrap	50.00-51.00
Cut Structurals	50.00-51.00
Elec. Furnace Bundles.	47.00-48.00
Heavy Turnings	45.50-46.50
No. 1 Chemical Borings	44.00-45.00

Cast Iron Grades

No. 1 Cupola Cast	63.00-65.00
No. 1 Machinery Cast.	67.00-68.00
Charging Box Cast	64.00-65.00
Heavy Breakable Cast.	62.00-63.00
Unstripped Motor Blocks	59.50
Malleable	76.00-78.00
Clean Auto Cast	64.00-65.00
No. 1 Wheels	68.00-70.00

NEW YORK

(Brokers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$39.00
No. 2 Heavy Melt. Steel	37.00
No. 1 Busheling	37.00
Nos. 1 & 2 Bundles	37.00
No. 3 Bundles	35.00
Machine Shop Turnings	29.00-29.50
Mixed Borings, Turnings	29.00-29.50
Short Shovel Turnings.	30.00-31.50
Punchings & Plate Scrap	42.00-42.50
Cut Structurals	42.00-42.50
Elec. Furnace Bundles.	42.00-42.50

Cast Iron Grades

No. 1 Cupola Cast	57.00-58.00
Charging Box Cast	57.00-58.00
Heavy Breakable	56.00-57.00
Unstripped Motor Blocks	53.50-54.50
Malleable	68.00-69.00

BOSTON

(Fob shipping point)

No. 1 Heavy Melt. Steel	$38.90
No. 2 Heavy Melt. Steel	34.40
No. 1 Bundles	34.40
No. 1 Busheling	34.40
Machine Shop Turnings	29.40
Mixed Borings, Turnings	29.90
Short Shovel Turnings.	31.90
Bar Crops and Plate	40.00-41.00
Punchings & Plate Scrap	40.00-41.00
Chemical Borings	36.00-37.00

Cast Iron Grades

No. 1 Cupola Cast	60.00-65.00
Heavy Breakable Cast.	60.00-62.00
Stove Plate	54.00-55.00
Unstripped Motor Blocks	50.00-52.00
Clean Auto Cast	54.00-56.00

CHICAGO

No. 1 Heavy Melt. Steel	$41.50-42.00
No. 2 Heavy Melt. Steel	41.50-42.00
No. 1 Bundles	41.50-42.00
No. 2 Bundles	41.50-42.00
No. 3 Bundles	39.50-40.00
Machine Shop Turnings	36.50-37.00
Mixed Borings, Turnings	36.50-37.00
Short Shovel Turnings.	38.50-39.00
Cast Iron Borings	37.50-38.00
Bar Crops and Plate	47.00-48.00
Punchings	48.00-49.00
Elec. Furnace Bundles.	42.50-43.00
Heavy Turnings	41.00-41.50
Cut Structurals	46.50-47.00

Cast Iron Grades

No. 1 Cupola Cast	70.00-71.00
Clean Auto Cast	70.00-71.00
No. 1 Wheels	61.00-63.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	45.00-46.00
Malleable	82.00-83.00
Rails, Rerolling	64.00-65.00
Rails, Random Lengths	58.00-59.00
Rails, 3 ft and under	62.00-63.00
Rails, 18 in. and under	63.00-64.00
Railroad Specialties	55.50-56.50
Angles, Splice Bars	57.00-58.00

ST. LOUIS

No. 1 Heavy Melt. Steel	$44.00-45.00
No. 2 Heavy Melt. Steel	40.00-41.00
Machine Shop Turnings	35.00-36.00
Short Shovel Turnings	36.50-37.50

Cast Iron Grades (Fob shipping point)

No. 1 Cupola Cast	65.00-66.00
Mixed Cast	56.00-58.00
Heavy Breakable Cast.	59.00-60.00
Brake Shoes	60.00-61.00
Clean Auto Cast	65.00-67.00
Burnt Cast	59.00-60.00

Railroad Scrap

R. R. Malleable	71.00-72.00
Rails, Rerolling	63.00-65.00
Rails, Random Lengths	56.00-59.00
Rails, 3 ft. and under	60.00-61.00
Uncut Tires	51.00-52.00
Angles, Splice Bars	54.00-56.00

BIRMINGHAM

No. 1 Heavy Melt. Steel	$39.50
No. 2 Heavy Melt. Steel	39.50
No. 1 Busheling	39.50
Nos. 1 & 2 Bundles	39.00
No. 3 Bundles	37.00
Long Turnings	24.50
Short Shovel Turnings.	26.00-27.00
Cast Iron Borings	25.00
Bar Crops and Plate	40.00
Cut Structurals	38.50

Cast Iron Grades

No. 1 Cupola Cast	63.00
Stove Plate	60.00-62.00
No. 1 Wheels	59.00-61.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	38.00
R.R. Malleable	nom.
Axles, Steel	50.00
Rails, Rerolling	53.00-55.00
Rails, Random Lengths	45.00-48.00
Rails, 3 ft and under	53.00-55.00
Angles and Splice Bars	52.00-53.00

SAN FRANCISCO

No. 1 Heavy Melt. Steel	*27.50
No. 2 Heavy Melt Steel	*27.50
No. 1 Busheling	*27.50
Nos. 1 & 2 Bundles	*27.50
No. 3 Bundles	*24.50
Machine Shop Turnings	*18.00
Bar Crops and Plate	*27.50
Cast Steel	*27.50
Alloy Free Turnings	*18.00
Cut Structurals	*27.50

Railroad Scrap

No. 1 Heavy Melting	*28.50
Axles	*34.00
Rails, Random Lengths	*29.00

* Fob California shipping point.

SEATTLE

No. 1 Heavy Melt. Steel	$27.50
No. 2 Heavy Melt. Steel	27.50
No. 1 Busheling	27.50
Nos. 1 & 2 Bundles	27.50
No. 3 Bundles	24.50
Machine Shop Turnings	21.00-22.50
Mixed Borings, Turnings	21.00-22.50
Punchings & Plate Scrap	35.00
Cut Structurals	26.00-28.00

Cast Iron Grades

No. 1 Cupola Cast	40.00-42.00
Heavy Breakable Cast.	35.00
Stove Plate	30.00
Unstripped Motor Blocks	32.50
Malleable	40.00
Brake Shoes	35.00
Clean Auto Cast	40.00
No. 1 Wheels	37.50-40.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	28.50
Railroad Malleable	30.00
Rails, Random Lengths	30.00-32.00
Angles and Splice Bars	28.50

LOS ANGELES

No. 1 Heavy Melt. Steel	$27.50
No. 2 Heavy Melt. Steel	27.50
Nos. 1 & 2 Bundles	27.50
Machine Shop Turnings	16.00
Mixed Borings, Turnings	15.50-16.00
Punchinge & Plate Scrap	28.00
Elec. Furnace Bundles.	28.00

Cast Iron Grades

No. 1 Cupola Cast	35.00-36.00

HAMILTON, ONT.

(Ceiling prices, delivered)

Heavy Melt.	$22.00
No. 1 Bundles	22.00
Mechanical Bundles	20.00
Mixed Steel Scrap	19.00
Mixed Borings, Turnings	17.00
Rails, Remelting	28.00
Rails, Rerolling	26.00
Bushelings	17.00
Bushelings, new factory, prep'd	21.00
Bushelings, new factory, unprep'd	16.00
Short Steel Turnings	17.00

Cast Iron Grades*

No. 1 Cast	42.00-48.00
No. 2 Cast	35.00-37.00

* Removed from price control Aug. 9, 1947; quoted on basis of fob shipping point.

For High Density Bales...use the Self-Contained

LOGEMANN Scrap Presses

Press, Pump, Tank . . . all in one compact assembly

Available with Automatic Control

Both two and three ram models are available with automatic controls . . . and are recommended when the nature of the scrap warrants such application and where high output is desired.

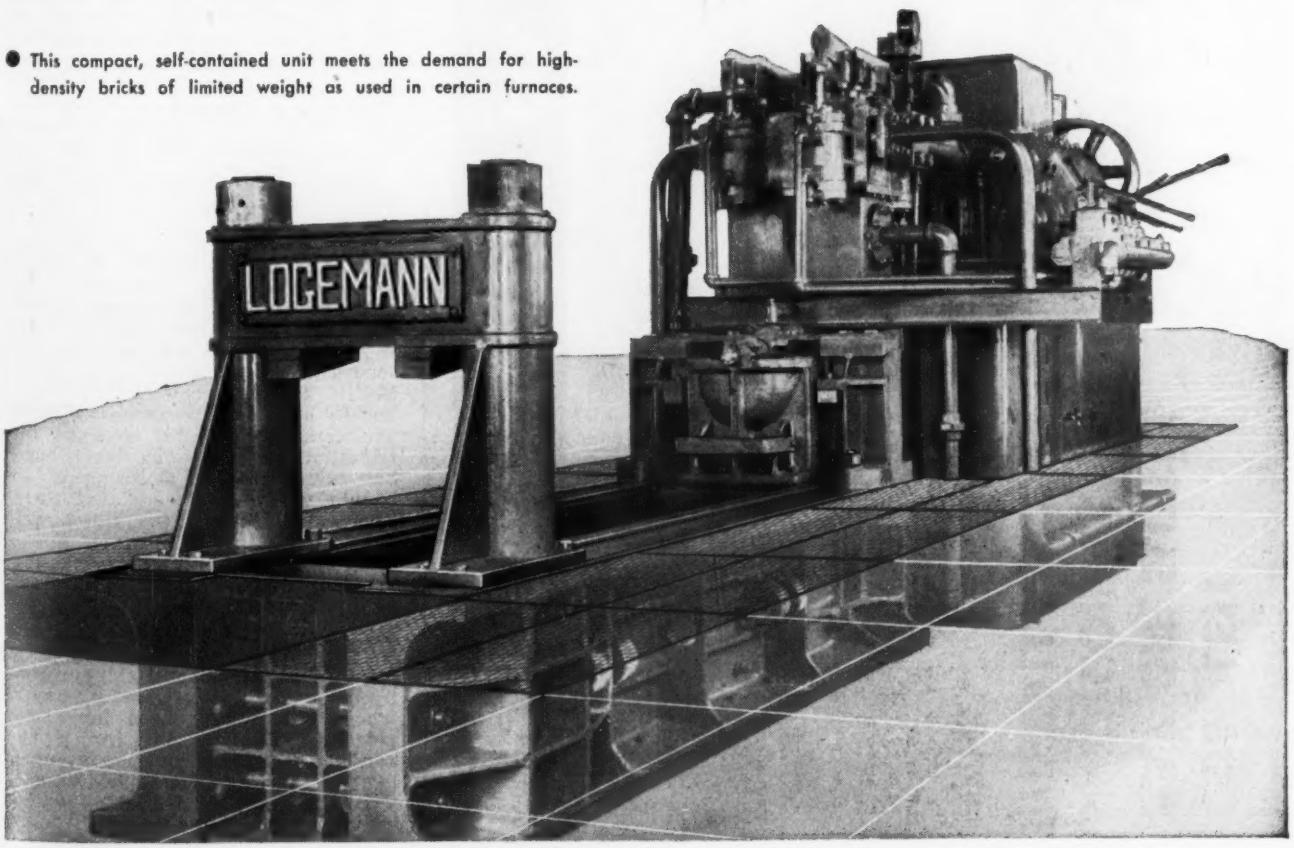
You conserve floor space and piping in plants and mills where space is limited . . . and at the same time, handle high tonnages at extremely low operating cost.

Pioneers in the metal baling field, LOGEMANN engineers have embodied the features proved through actual operation to be essential to constant, uninterrupted service. These same engineers are prepared to offer suggestions as to operating layout and installation of any unusual or specific need. Present your problem to them, stating the nature of your scrap and the tonnage desired. There is no obligation.

LOGEMANN BROTHERS CO.

3164 W. BURLEIGH STREET • MILWAUKEE 10, WISCONSIN

● This compact, self-contained unit meets the demand for high-density bricks of limited weight as used in certain furnaces.



COMPLETE
PAY-OFF, SLITTER
AND COILER
INSTALLATION

PAY-OFF REEL can be of 5 to 20,000 lbs capacity and coil width can be from 24" to 60".

SLITTER can be built to slit various gages and with number of cuts from 24 to 84.

COILER is equipped with hydraulic push-off; D.C. Motor drive; and centralized control for slitter and coiler.

Units can be supplied individually; delivery in approximately six months.

This equipment is located at the plant of Edgcomb Steel Co., Philadelphia

PAXSON MACHINE CO.
SALEM, OHIO

MANUFACTURERS OF:
COILERS, LEVELLERS, PAY OFF REELS, EDGE ROLLERS, SCRAP BALLERS

Ferroalloys . . .

Southern producer advances ferromanganese $12 a ton to $162, effective Oct. 1

Ferroalloy Prices, Page 135

New York — Sloss-Sheffield Steel & Iron Co., Birmingham, has announced an increase of $12 a ton on ferromanganese, effective Oct. 1, to the basis of $162, f.o.b. cars at furnaces.

Another important announcement in the industry that was announced last week revealed that a leading eastern producer of ferroalloys has changed its pricing policy from one of "freight allowed" to "delivered." This was done, it is understood, from a purely legal standpoint in order to bring the company's pricing policies in line with the Federal Trade Commission's views on such matters.

So far as the cost to the consumer is concerned, the switch is more or less a change in pricing without a resulting difference in the cost of material to the consumer. However, it does mean that in quoting on a delivered basis, the producer retains full ownership of the material until it is actually delivered to the plant of the buyer.

Heretofore, on an f.o.b. mill freight allowed basis, the consumer acquired ownership as soon as the material left the seller's plant. If there were any damage done to the material enroute, it has always been, theoretically at least, at the expense of the buyer, or at least up to the buyer to obtain adjustment of claims from the railroad. But in actual practice, the producer (not the buyer) followed through on claims.

Unconfirmed reports received here indicated that one producer of ferroalloys has withdrawn from that market and will restrict its production in the future to pig iron.

Tubular Goods . . .

Tubular Goods Prices, Page 133

Boston—With merchant steel pipe and most tubular products among the tightest, one month or more is being blanked out for fourth quarter, although the pattern is uneven among producers. Cold-drawn mechanical tubing, 1½-inch and smaller, is booked into third quarter, 1949, in some instances and no additional forward orders are being taken. Boiler tube allocations to warehouses have been reduced up to 10 per cent. Most mills continue distribution on a consigned stock basis, but there is some shuffling of accounts where producers find themselves at a disadvantage, due largely to the dual price situation among sellers. There is practically no galvanized, 2-inch and under, available in distributor stocks.

Seattle—Deferred deliveries of cast iron pipe are being aggravated by the idleness of intercoastal shipping and agencies are being pressed by buyers whose orders have been long since placed. Inquiry for cast iron pipe is consequently slow, although much business could be placed in this area were materials available within reasonable time.

Sheets, Strip . . .

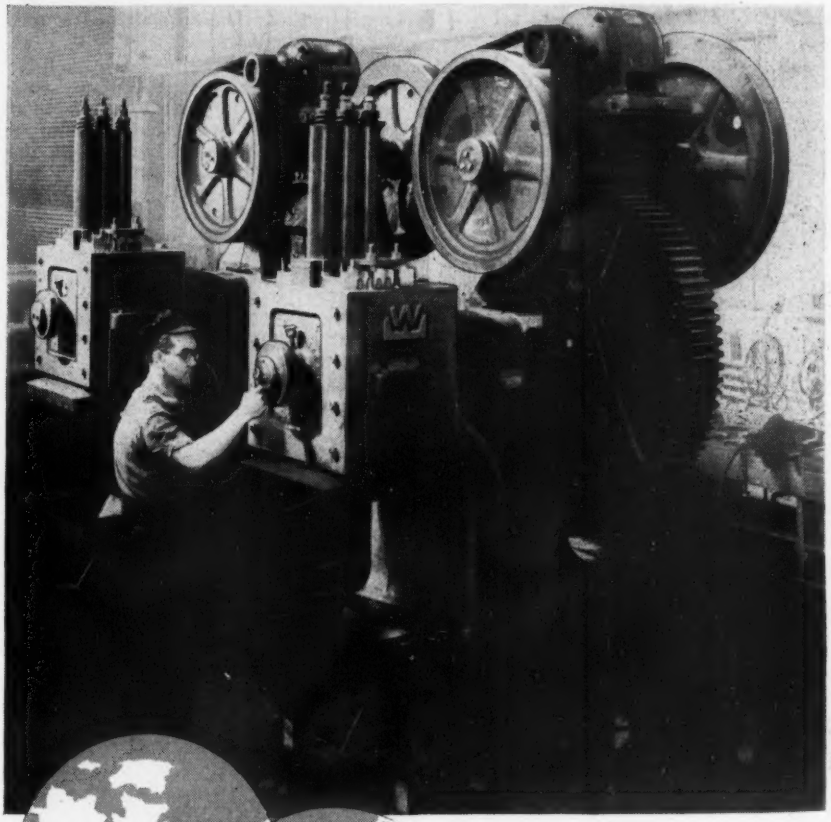
Sheet Prices, Page 132

New York — While sheet consumers now have a better conception as to where they stand on tonnage for shipment over the remainder of the year—at least insofar as their regular suppliers are concerned—they find their position will be even worse than in the current quarter, with requirements greatly exceeding promised supply. Actual production in the final quarter is expected to be somewhat heavier, but allocation of tonnage for government sponsored programs along with mill carryover, will likely offset this advantage for the general rank and file of consumers. Of course, from the standpoint of shipments received and not from the standpoint of new specifications, consumers will not fare quite as badly as they might. There will be the anticipated increase in mill production of at least modest volume and carryover tonnage will represent steel that they can work with. So, theoretically, the principal adverse factor for the average consumer will be the extra tonnage diverted to preference work, but, nevertheless, even if this factor didn't enter, supply still would fall far short of demand.

Boston — Material shortages and mixed prices plague users of flat-rolled products, more so in strip than in sheets with stainless spreads widest on both. There is some shifting of order accounts, at least temporarily; some producers are higher on heavy gages, lower on lighter gage stainless and vice-versa while discounts are not uniform. While alloys as a whole, including stainless, are more extended, a competitive market still prevails for the latter grade. Sheet and strip users are also tightening belts for fourth quarter with allocations lowered 10 to 20 per cent depending on the type; hot-rolled carbon and galvanized are in shortest supply while cold strip mills are confronted with declines in hot-rolled quotas averaging close to 10 per cent. At least two producers of cold strip have not gone on an f.o.b. mill basis and are selling on the multiple basing point delivered basis.

Pittsburgh — No easing in pressure for sheet and strip deliveries is in evidence, despite speed-up of some rolling mill facilities and installation of additional units. Scheduled increase in shipments to metalworking companies coming within scope of voluntary allocation programs, is considered major factor in continued tightness in flat-rolled steel supply for bulk of consumers. Some decline in requirements is reported by some interests for small steel containers. However, occasional openings in rolling schedules that develop are quickly taken up by demand from other end uses. Continued upturn in demand is noted for stainless steel sheets and strip.

Chicago—A leading mill which had cut its October customer quotas up to 10 per cent on various sheet and strip products is now extending these cuts into November and December. The reductions were made because of the drain which voluntary allocations are making on fourth quarter production. Some military orders are now being specified, one being for stainless



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sheets for fabrication of food service equipment. A recent new use for stainless sheets and strip is in floors and racks for refrigerator cars. Consumers of flat-rolled products are much concerned over their prospects of obtaining sufficient material to maintain manufacturing schedules.

Cincinnati — District sheet mills by reducing quotas for fourth quarter on tonnage not taken in the voluntary allocation program, seek to reduce carryover which now exists. Fulfillment of this aim, of course, will hinge largely on new demands which may appear from now to Jan. 1. Nature of inquiries, however, give mills confidence that an unexpected, heavy requirement by the military, for example, will not be forced into fourth quarter schedules.

Birmingham — Although mills have made no public announcement, concern is evident in some quarters over availability of sufficient sheets to maintain operating schedules in the last quarter. Reports are heard that allocations in some instances are likely to be reduced because of large backlogs, although it was expected that changeover of the Fairfield mill to colled-rolled products would at least partly alleviate the tightness. No date for the changeover has been officially set. Strip production is at a minimum.

St. Louis — Effect of defense requirements for cold-rolled sheets is beginning to be felt here. Consumers are complaining of inability to obtain steel on schedule or place orders on mill books. Bulk of the hardship falls on the relatively few fabricators whose production cannot get a rating as essential in the voluntary allocations program. Granite City Steel Co. was to decide late last week on when to open fourth quarter books. Indications now are the carryover tonnage will fill 50 per cent of the probable capacity of the firm's new cold reduction mill. August output was 10 per cent above July's, and it is expected at least as good a showing will be made in September. Company hopes to be current on orders and have cold sheet operations near the 40,000-ton monthly capacity by the end of the year. Lately ingot production and rolling operations have been in balance. Its ingot pile was cut 8000 to 10,000 tons recently by a shortage of bricklayers for open-hearth repairs.

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Steel Bars . . .

Bar Prices, Page 132

Pittsburgh—New orders for cold-finished carbon and alloy bars continue to exceed production schedules in many instances. However, this situation probably would be alleviated considerably if producers had adequately balanced inventories of hot-rolled bars to sustain near capacity operations. The bar market has been devoid of price action in recent weeks, with previously reported spread in prices still prevailing. Merchant carbon bar sellers report continued heavy demand from all sources throughout full range of sizes. Pressure for deliveries in large size classifications is said to be as heavy as that in smaller sizes.

New York — Although commercial bars are not under such buying pressure as the major flat-rolled prdoucts, supply is still falling short of demand. This applies to both hot and cold carbon bars and, in fact, the pressure for cold-drawn bars has been so substantial that some of the leading producers, who also sell hot carbon material, have been diverting an increasing amount of this latter for the production of the more profitable cold-drawn business. In the case of two important sellers, this diversion has contributed substantially to a curtailment in fourth quarter of consumer quotas of hot carbon bars. The situation in alloy bars continues in relatively fair balance, although most sellers have little additional tonnage for shipment over the remainder of the year.

Boston — Of the major carbon products, steel bar allocations for fourth quarter are reduced less drastically on the average; while some quotas are 10 per cent lower with the cuts deepest in hot-rolled, one producer actually will have more tonnage for distribution than during the third quarter. Several mills have practically withdrawn from this area on hot-rolled carbon and are more selective in accepting cold-drawn tonnage in both carbon and alloy grades. Alloy bars are tightening steadily, reflecting to some degree military requirements and those grades are affected more by voluntary program distribution than carbon grades.

Structural Shapes . . .

Structural Shape Prices, Page 133

Philadelphia—In addition to the 1750 tons of subway work recently placed, two fairly sizable structural jobs are expected to be placed momentarily, with the market in general rather quiet otherwise. New inquiry involves small scattered projects. Fabricators, however, have substantial backlogs and are more concerned at the moment about steel supply than anything else. Shape quotas for fourth quarter have been reduced somewhat and stringency in plates has never been so marked in peacetime.

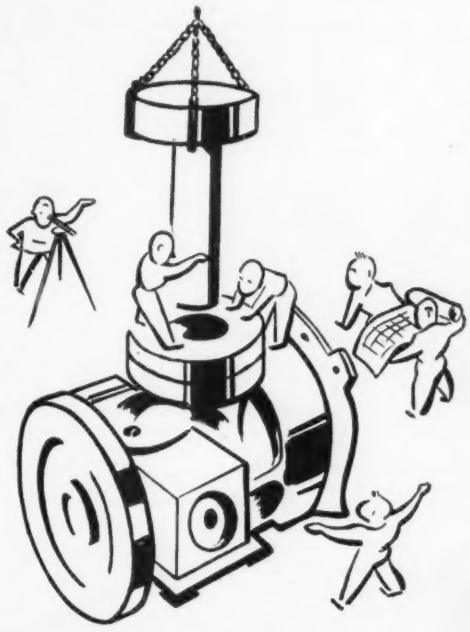
New York—Structural buying here is relatively spotty, although a fair amount of public inquiry is active. Fabricators assert that in general demand has been smaller during the past few weeks and that, if it were not for public work, the situation would be quite dull. Seasonal influences have some bearing on this trend, but the high cost of building construction, with uncertainty as to when costs will become stabilized, is having major effect. Most fabricators, however, have substantial backlogs, ranging from four to six months, and shape mills still appear to have more demand than they can adequately handle in view of the continued scarcity of raw steel. In other words, while their facilities are not being forced to capacity operations, shape producers are not receiving enough steel to meet the shape demand that confronts them.

Boston—Although still uncertain as to definite tonnage for late fourth quarter, allocations for that period may be reduced by as much as 20 per cent in some instances; prospects for warehouses are notably poor as to structural supply over the next few months. Inquiry for fabricated material is slackening. Deliveries from the larger shops are from five to six months with those from smaller units somewhat better when plain material is available.

Chicago — Few structural fabricators in this district are looking for new business. They are booked for at least six months ahead, and the tightening supply of plain shapes indicates that operations cannot be sustained at the level of past weeks. There is decided shrinkage in new construction work coming out. The amount of public construction continues at high level, but bidding for them is not general or active.

Birmingham — Shape output continues on a relatively active basis in some quarters, but most projects are small. Shelving of construction plans is noted here and there due to mounting costs and uncertainty of many supplies. Delivery of 1500 tons for the new Birmingham city hall is due to start late this week.

Seattle—Fabricating plants are facing serious obstacles, especially the shortage of materials which restricts them in bidding for larger jobs. The shipping strike is an added headache as considerable steel is aboard idle ships. Mills refuse to store shipments and buyers here have to ship by rail, at an increased cost of $15 a ton for freight, or lose their allocations. It is difficult to keep shops in full operation in the circumstances.



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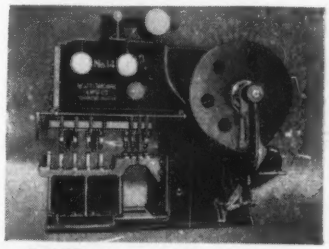

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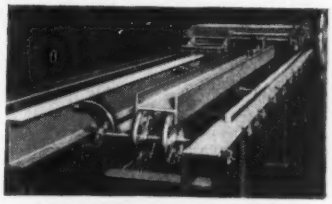

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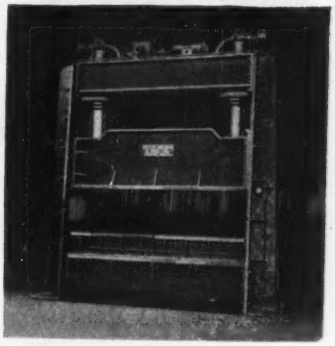

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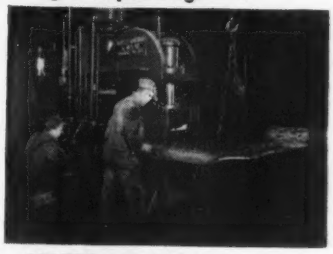

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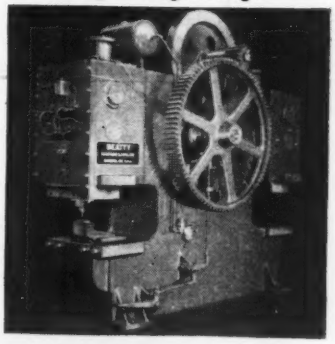

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Plates . . .

Plate Prices, Page 133

New York—While production of plates over the remainder of the year should be slightly heavier, output will not likely reach capacity of existing plate mills for the reason that melt of the open hearths will not be fully up to normal because of the excessive amount of scrap that still has to be used. Were it possible to obtain a greater volume of pig iron so as to provide for a normal mix, output could be stepped up; however, the prospect for any important increase in pig iron over the next several months is not promising.

Meanwhile, despite some likely improvement in output, consumers generally will receive less plate tonnage in the last quarter because of the substantial allotments that will be made for preference work. These allotments will take at least 30 per cent of the output and while they will include a certain portion that would have been applied to this preference work anyway, the amounts to be provided will nevertheless cut quite a hole in the amount to be distributed generally for non-preference work. So heavy is the demand in relation to the amount of plate tonnage available, some mills have not been able to set up their consumer quotas for the entire last quarter.

Although plate demand is pressing, there is no disposition on the part of the strip mills to get into plate production as they did during the war, for sheet demand at present is also highly pressing. Only some national emergency, which would require a substantial increase in the amount of plates, would cause the strip mills to divert capacity to the heavier product—or a sharp drop in sheet demand under peacetime conditions, and this doesn't seem likely for a long time to come.

Boston—Plate allocations for fourth quarter are generally reduced more than other steel products; in some instances, 30 per cent. First impact of the shipbuilding program is being felt with more tonnage starting to move to private and Navy yards. Due to these and other requirements slated for other voluntary distribution programs, free tonnage for general distribution is steadily narrowing. Integrated fabricating shop volume holds at a higher rate and more plate tonnage is going into large diameter pipe. Mixed prices and selective selling also complicates distribution with more consumers showing a tendency to shy away from premium prices.

About 5000 tons of imported plates, including $\frac{3}{16}$ and one-quarter inch, are being offered in the east in 50-ton lots at reported price of 10.00c per pound.

Philadelphia—District plate producers report no let-up in demand, with inquiries being turned down right and left. The relatively heavy volume of certified tonnage they are being called upon to handle has left the general run of consumers in a bad way. One eastern plate mill with excess rolling capacity, and which has been accepting ingots from the outside for processing into plates for consumers who arranged for the supply of ingots, now has much more ingot tonnage offered than it can handle.

Leading producer of sheets has recently set up consumer quotas for the entire fourth quarter, which means that allotments have been made for November and December as quotas for October had long since been established. Another large seller has now completed quotas for the entire period on cold-rolled sheets, but has not yet taken action for November and December on hot sheets.

Birmingham — Plates continue on the scarce list. Most projects are relatively small, but carbuilding is taking its full allocation as are most tank producers. Miscellaneous plate users are finding small lots increasingly difficult to obtain, especially on short notice.

Seattle — Plates are increasingly short and plants are seriously handicapped. It is impossible to figure on projects involving sizable tonnages and, where possible, it is necessary to substitute.

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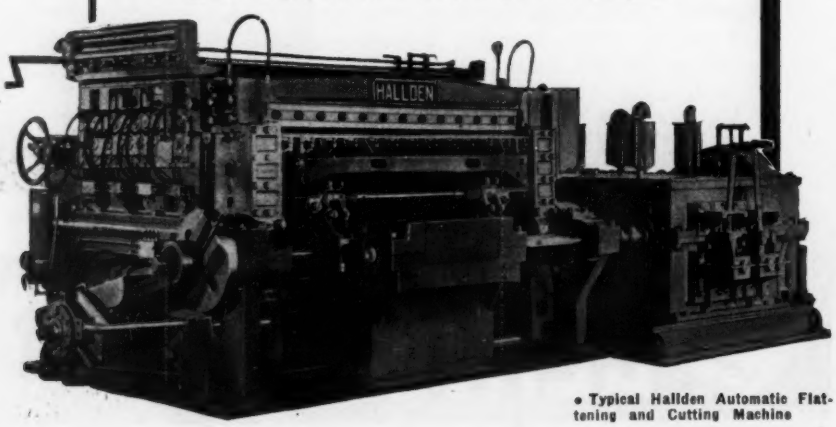

• Typical Hallden Automatic Flattening and Cutting Machine

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 132

Boston—Estimated inquiry for concrete reinforcing bars is currently heavier than for fabricated structural steel, but the availability of this product is no better. Nevertheless, some work has been designed for concrete reinforcing at the expense of

structural; when it comes to placing orders for bars, buyers find a skimpy supply and frequently are forced to shop around among several distributors to fill even small lots. Bar allocations for concrete reinforcement are less than demand and are no higher for next quarter.

Seattle—Rolling mills are struggling under heavy order backlogs which continue stationary as additional orders are taken for reinforcing bars. Capacity is being spread as far as possible among regular customers, one plant reporting prospective business to the end of 1949, although firm bookings do not extend beyond the first quarter. Pressure from contractors for reinforcing bars is insistent and many larger jobs are not being figured by local plants. Northwest Steel Rolling Mills, Seattle, may be forced to close if the strike in the oil industry continues.

Iron Ore . . .

Iron Ore Prices, Page 134

Cleveland — Consumption of iron ore increased 557,103 tons during August to a total of 7,036,135 tons, according to the Lake Superior Iron Ore Association, this city. This compared with 6,637,835 tons during August of last year and brought the total for the first eight months to 51,856,701 tons against 53,024,888 tons for the like 1947 period.

One additional furnace was put in blast last month, making the total 171 and leaving 13 idle. A year ago 168 furnaces were in blast while 15 were idle. No change from either of these comparative periods was reported in Canada, 9 furnaces being in blast and 1 idle.

Despite the high rate of consumption, approximately equaling the monthly high for the year to date, stocks continue to increase and at 37,080,989 tons on Sept. 1 were 3,184,527 tons above the total at the same time a year ago. The increase in July over June stocks amounted to 4,470,204 tons.

Wire . . .

Wire Prices, Page 133

Pittsburgh—Despite well sustained production schedules throughout most of this quarter at near capacity levels, sellers have made little progress in narrowing the gap between supply and demand on most grades of manufacturers and merchant wire items. Jobbers' stocks of merchant wire products continue unbalanced and well below desired volume in relation to current demand. A number of producers have not yet taken action in increasing galvanizing extras on nails. Some of these interests are quoting higher base prices. Indicated increase in merchant quality galvanized wire or fencing also has not yet materialized. Pressure for prompt delivery on bulk of wire products continues unabated, although some easing is noted in spring wire reflecting slowing up in overall requirements for mattress and bedding wire. General shortage in wire rods continues to retard production schedules among nonintegrated interests.

Boston—Gradual withdrawal from this territory by rod and wire producers is highlighted by drawing the curtain on wire products, including nails, by a Pittsburgh district mill. Filling these gaps by nonintegrated mills is hampered by limited rod supplies which are more or less pegged at levels below requirements. Screw manufacturers with wire drafting equipment are buying a higher ratio of finished wire for further sizing, notably in the middle size ranges.

Birmingham — Wire products, especially fencing and nails, are still in short supply, although not as much as at the height of the outdoor season. Manufacturers' wire is somewhat easier.

Rails, Cars . . .

Track Material Prices, Page 133

New York—Sellers of car steel believe that car buying in the month now closing will be about as light as for any month this year. However, the recent award of 1875 cars by the Illinois Central to its own shops is a substantial list in itself and, with such scattered orders as may be reported by the end of the month, may result in a fair total. New inquiry currently appears to be centered in the west, with the Western Pacific in the market for 250 gondolas and the St. Louis-San Francisco for 200 gondolas.

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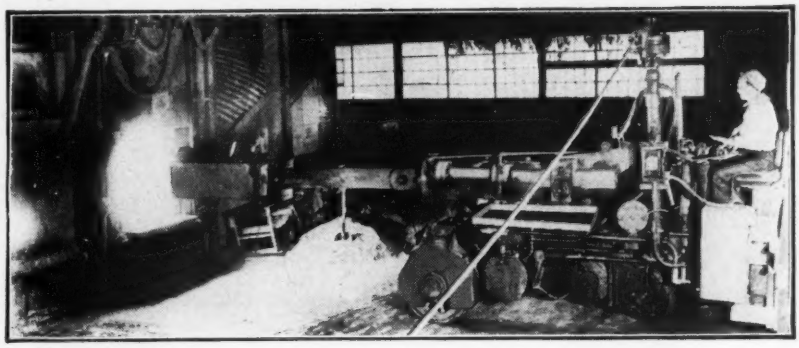

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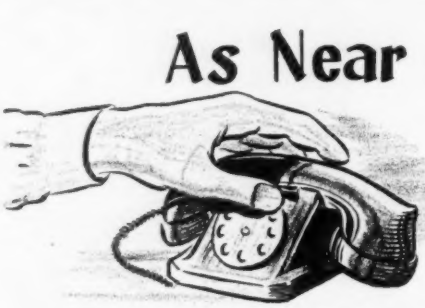

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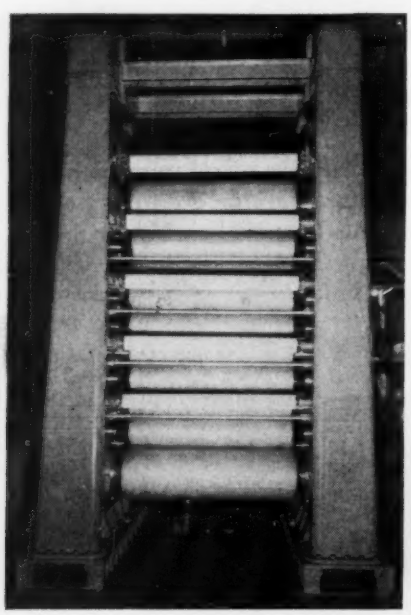

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STEEL PLATES

Pig Iron . . .

One eastern producer raises prices $4 a ton. Car shortage hampers shipments

Pig Iron Prices, Page 134

Philadelphia—Pig iron supply in this district next month will show some improvement. District foundries anticipate a somewhat better supply of iron next month, especially with the Swedeland, Pa., producer getting back to normal on merchant distribution. Supply will still fall far short of requirements, but the increase will help, particularly in view of the fact that foundries have been experiencing a substantially greater volume of casting rejects than normally because of the necessity for using an excessive amount of scrap in their mix. Oven coke is increasingly scarce.

An advance of $4 a ton on pig iron at Bethlehem, Pa., and Steelton, Pa., has resulted in a corresponding increase in the minimum delivered prices here. With Bethlehem the governing base on shipments here of basic, No. 2 foundry, malleable and bessemer, the delivered prices on these grades are, respectively, $50.17, $50.67, $51.17 and $51.67; with Steelton the governing base on low phosphorus on shipments here, the new delivered price on that grade is now $56.81.

New York — Shortage of freight cars is becoming an increasing factor in the present stringency in pig iron. One Buffalo producer, for instance, reports that he hasn't had enough car space to fully move the pig iron available at his plant for the past three weeks, and other shippers report somewhat similar experiences. They claim that one contributing factor to the shortage of cars is that, in their efforts to distribute their iron as widely as possible among customers, they have been shipping a greater number of minimum or near-minimum carloads than normally. Some shippers are now stiffening their attitude in this respect, as they point out that it is obviously not good practice to contribute to a situation which is resulting in a banking of stock at the furnaces, where it is doing no one any good.

One Buffalo producer, which recently resumed serving the merchant trade, has sold a consumer in the metropolitan district a carlot of basic for foundry use at $58.50, Buffalo, which represents a substantial premium over the going market.

The leading eastern producer has advanced all grades of pig iron $4 a ton at Bethlehem, Pa., and Steelton, Pa. Thus minimum delivered prices at Newark, N. J., are now $50.39 for basic, $50.89 for No. 2 foundry, $51.39 for malleable, and $51.89 for bessemer.

Boston—Purchases of foreign iron at $85 to $90 ton are limited chiefly to tonnages to carry operations to the period when Mystic volume is again available around mid-November. Repairs to the Everett stack are on schedule, but first new production will be spread thinly covering the more urgent emergencies. Outlook for additional iron from other domestic furnaces is slim with the

possible exception of silvery. Scattered foundries, also steelworks, not hinged with Mystic production under the mutual co-operative agreement, are operating on close margins and the patched up arrangement for basic from the Buffalo district is limited to May 1. Resumption of output at Mystic will find inventories at low ebb. Few shops have been forced to close, although there are curtailments and in some instances melt is off slightly. High scrap ratios are employed and by use of improvised metallurgical practices most shops continue in production.

Pittsburgh—Scarcity of pig iron and of good quality coke and cast scrap remains the major factor retarding foundry operations. To offset iron shortage some foundries are reportedly charging up to 75 to 80 per cent and higher scrap. The coke situation is not expected to register significant improvement as long as foundries are forced to rely almost entirely on beehive coke. The critical shortage prevailing in these raw materials has been offset somewhat by downward trend in new orders booked by gray iron jobbing foundries making light castings. Some of these interests are now able to promise relatively current delivery on new business. Demand for steel castings remains very good from the railroad industry, involving such items as side frames, bolsters and center plates.

Tennessee Products Corp. will advance its price for standard 78-82 per cent ferromanganese $15 per gross ton to $165, f.o.b. Rockwood, Tenn., effective Oct. 1. On that date ferrosilicon price will be marked up 1.2 cent per unit, making 50 per cent ferrosilicon in carloads, 10.50 cents per unit; 75 per cent material, 13 cents; and 80 to 90 per cent, 15 cents, delivered. Carnegie is expected to soon announce higher price levels on spiegeleisen and ferromanganese.

Buffalo—Continued shortage and poor condition of railroad cars have left many foundries in dire straits. Despite the urgent need for iron, one of the area's top merchant sellers has been piling a part of production. Sellers have created a "distress" list of customers who have been hit the hardest by the lack of cars.

Some improvement has been noted in the coke situation. Supplies are holding about the same in volume but the quality is better than it has been. Improved heats has had an immediate effect on production.

Birmingham — Even though movement of iron to district foundries is reported in somewhat better balance currently, the supply situation from an overall viewpoint is as tight as ever. Movement of foreign iron into the district continues sporadically and most iron-dependent industries are still unable to maintain full production schedules.

Chicago — Prospects are somewhat brighter for increased production of merchant pig iron soon. Youngstown Sheet & Tube Co. lighted its new 1400-ton blast furnace No. 1 at its Indiana Harbor plant on Sept. 17 and this will lessen the tonnage of hot metal which was required from the company's three blast furnaces at South Chicago while the new furnace was under construction. Carnegie-Illinois relighted its No. 2 stack at Gary on Sept. 16, following a down period for repairs. Currently, 40 of the district's 43 furnaces are operating. Contrary to original expectation, Inland Steel Co. will not be making merchant iron in fourth quarter. A furnace is scheduled to come off for repairs in December and it is building up inventory of basic iron so that the steelmaking rate can be maintained.

St. Louis—Squeeze on pig iron consumers here continues to worsen. Repairs on one of Missouri-Illinois Furnaces Inc.'s stacks have cut its normal 1000-ton daily output to 500 tons, and now production on the remaining one has dropped slightly. In addition, curtailments at Daingerfield, Tex., principal emergency iron source here, have further reduced supplies. Limited shipments from Chicago also have dropped off somewhat. Consumers talk of drastic curtailments to come in their own operations as a result, but the only evidence so far is occasional reductions in the work week. Meanwhile Mo-Ill continues capacity coke production, charging about 1300 tons of coal daily for a yield of around 850 tons of coke. All output is being stockpiled against resumption of full furnace operations in October. Normally the company buys about 15 per cent of its coke needs on the open market.

Cincinnati—Pig iron melters are pressing for more tonnage with dual aim of expanding production and building stocks against shipping or

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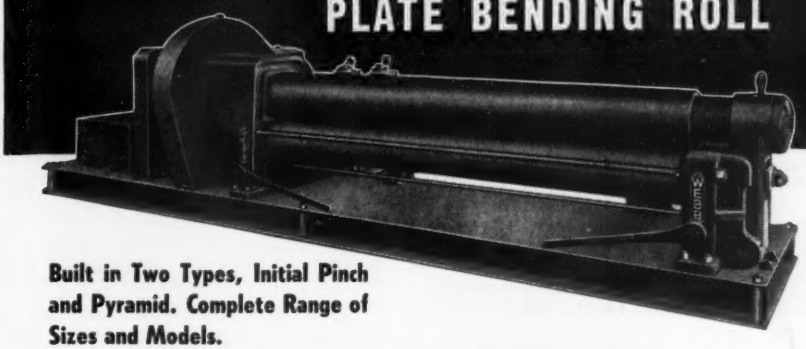

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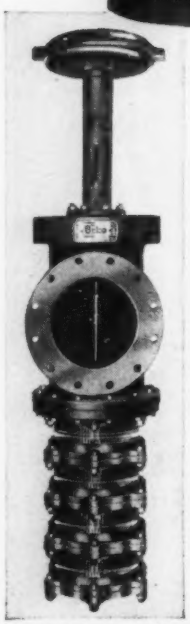

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other delays. Such efforts are proving futile, although furnaces are striving to maintain deliveries on basis of announced allotments. Many foundries report they have reached the limit in feasible use of scrap which is now in freer supply. The pinch in pig iron for the district is effective in both northern and southern iron receipts.

Warehouse . . .

Warehouse Prices, Page 135

Pittsburgh—Steel distributors' inventories of hot and cold-rolled sheets, structural shapes, plates and tubular products have recorded little improvement in recent weeks, while mill shipments are not expected to register much change in closing months because of relatively heavy requirements under voluntary allocation programs. There has been no change in pattern of warehouse steel demand, with continued heavy pressure for flat rolled steel items and more recently increased demand for merchant and cold-finished alloy bars. No price action has been taken by distributors in past few weeks, with result that spread in product quotations previously reported still prevail.

Philadelphia—Trend in warehouse business here is somewhat mixed, with some distributors expecting a slight decrease for the month now closing, and others a small gain. In all cases, however, business is good. Prices are becoming more stabilized, except in stainless steel where considerable confusion still exists. Policy of producers towards jobbers ranges all the way from the dropping of all discounts to a maintenance of discounts as they have been observed heretofore. Some producers have made no change whatsoever other than advancing their prices around 10 per cent early in August. These interests may make further revisions in pricing policies but there are no definite indications as to when or to what extent they will do so. One report in the warehouse trade here last week was that certain producers may ease their latest policies with regard to jobber discounts.

Cincinnati—A steady decline in tonnage of steel available to meet demands on warehouses has been noted in recent weeks. Sales volume for two months has been maintained at expense of inventories. Shortages are aggravated by increasing pressure on jobbers by mill customers seeking to augment reduced tonnage quotas.

Chicago — Warehouses in this district report heavier demand for steel and from more quarters, this being a reflection of the reduced quotas which mills have made effective to customers in fourth quarter. Distributors also must operate on reduced mill receipts, and as a result are not in a position to handle the business offered to them. Stocks are greatly unbalanced and many items, particularly flat-rolled are severely short.

Seattle — Wholesale houses are caught between reduced mill allocations and shipments indefinitely delayed by the maritime strike. Inventories are extremely low, some

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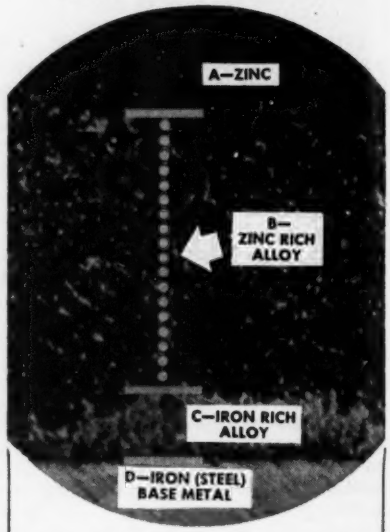

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items being entirely out of supply. They report the voluntary allocation plan is working to their detriment, while the award of contracts for new ships is increasing pressure for shapes and plates. These items, in addition to sheets, are on the critical list, cold-finished shafting and alloys, have tightened. One firm reports its first quarter allocation for plates may be rescinded. All items in stock are in good demand.

Scrap . . .

Scrap Prices, Page 138

Buffalo — Strong price tone prevailed in the scrap market here last week. One of the chief topics of discussion in the trade was a reported sale of No. 2 heavy melting scrap to a leading mill at $44.25 a ton, or $2 above the top figure of the prevailing range. The mill involved in the sale, which was reported only on the dealer side, denies making any recent purchases above current quotations. Firmer tendencies were injected into the market by a reluctance on the part of dealers to sell at present prices. Increases of $2 to $3 a ton were posted on railroad items. An additional 4000 tons of war scrap arrived from the seaboard by barges via the canal.

Philadelphia — District scrap prices are featured by an advance in charging box cast, which is now holding at $64 to $65, delivered, and in heavy breakable cast, which has increased slightly to a spread of $62 to $63, delivered. The increase in heavy breakable was substantial, amounting to more than $4 a ton, and is ascribed in part to buying by the new Penn-Ohio Steel Co., Birdsboro, Pa. This consumer has also closed on some tonnages of No. 1 and No. 2 heavy melting steel at premium levels, but volume has not been sufficient to affect the general market.

Steel scrap shipments in general are fairly good, with consumers able to build up inventories for the coming winter. However, they still have a way to go before getting stocks up to where they want them. One consumer of low phos scrap has held up shipments temporarily, but this is exceptional. A threat to the free flow of scrap last week were strikes at several local yards.

Foreign scrap is still coming in, with the second cargo of German scrap for Bethlehem, Pa., within less than a week having arrived here. Actually this is the third cargo of German scrap to have come in here this month, and the fourth cargo of foreign iron. As noted in previous issues, one shipment of German scrap and one of Pacific material came in early in September for distribution among three of the smaller independents in this district. Two more cargoes of German scrap for the account of the leading eastern consumer are expected to arrive at the eastern seaboard within the next several days, but whether they will arrive here or in New York remains to be determined.

New York — While brokers' buying prices for steel scrap are unchanged, the market is decidedly strong, with several mills, particularly in the Pittsburgh area, urgently in need of tonnage. This is ascribed in part to the

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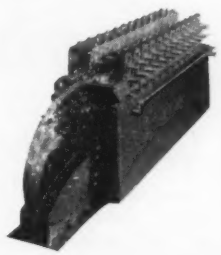

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situation prevailing in bundles. With not enough No. 1 and No. 2 scrap to go around, bundles have assumed importance not surpassed since the end of the war.

Some weeks ago the quality of bundled scrap became so poor that some large consumers placed a ban on shipments, thus cutting substantially into their receipts of open-hearth material. Recently some consumers lifted this ban, but indicated severe action if specifications were not more rigidly adhered to. This has resulted in some improvement in the flow of bundles, but not as much as anticipated by the buyers for the reason that various shippers have become "scared off" by the threat of the mills if the quality is not substantially bettered. Consequently, various buyers are still not receiving enough open-hearth scrap to meet current needs.

Brokers have advanced their buying prices on charging box cast to a spread of $57 to $58, f.o.b. shipping point; also on unstripped motor blocks, for which they are now willing to pay $53.50 to $54.50.

Detroit—Market continues relatively quiet, with tonnage of production scrap off appreciably due to the two weeks' inactivity at Briggs Mfg. Co.'s plants where a strike of 170 plant guards has idled approximately 100,000 in Briggs, Packard and Chrysler plants. Refusal of UAW-CIO production workers to cross picket lines of the independent guards' union has made it impossible to continue body manufacture; in the meantime Briggs has been able to build up depleted sheet steel inventories and Chrysler has reinforced low stocks of camshafts.

Chicago — Scrap market here continues the easier tone which was first observed around Labor Day. Steelmaking grades adhere to formula prices, but modest decreases are occurring in foundry material and scrap of railroad origin. Inventories of both mills and foundries are increasing and shipments are regular and substantial. As the easiness develops, dealers are moving material from their yards promptly to take advantage of advancing prices. This contributes to the good shipment volume. Consumers are showing less concern over their fall and winter supply, although there is the inescapable fact that scrap cannot be plentiful in view of the heavy consumption rate. Steel mills here currently are melting at the highest rate since June, 1945.

Cincinnati—Iron and steel scrap prices are holding fairly steady despite unconfirmed reports that higher bids are occasionally made on conversion deals. A strong undertone to the market is counteracted, in part, by a calmer attitude of melters, most of whom are fairly well stocked for near needs. Foundries have adequate scrap and hesitate to expand inventories at going prices while the melt is restricted by the pinch in pig iron. Adjustments in prices on cast and railroad scrap in the last week are mostly upward.

Birmingham — The scrap market shows a steady undertone, but lacks any particularly bullish feature. Most activity is in cast grades which are widely sought.

St. Louis—Scrap interests here continue to await developments. Reports are heard of offerings at higher prices, but melters generally are holding the line or awaiting lower prices. Shipments are fair, but buying is below normal for this season. It promises to remain so as long as mill inventories remain near their present 30-day level, or they become sufficiently alarmed at failure to build stocks for winter that they will take higher priced offerings. Stockpiles of most mills are staying abreast of their melt.

Pittsburgh—Growing resistance to high quotations on turnings, low phos and specialties is noted with one broker having difficulty finding a buyer for specialties obtained around $61.60. Trade practice of selling No. 1 heavy melting as low phos also is meeting greater resistance. Indicated upturn in foreign scrap receipts has had a slight softening effect on scrap quotations, although formula prices still prevail on open-hearth grades.

Los Angeles—The scrap situation in Southern California is described as slightly tighter. While effects of the waterfront strike cannot yet be computed in actual undelivered tonnages, it is regarded as certain that known loadings in the Orient either ready or being readied for movement will not leave port if the West Coast walk-out is prolonged.

In connection with Orient scrap purchasing, it is the announced intention of two major Southern California buyers to place any orders on a basis of delivery in Los Angeles Harbor. This is due to the uncertainties of costs in the operation of collecting and loading scrap among Pacific islands where, in many places, there are no harbors, making expensive lightering necessary.

A significant element also is the fact that under ship charter arrangements the 17 days free loading time may fall far short of the time required. Over the 17 days, an average charter cost may entail payment of $1600 a day.

Buyers feel that budding government collection programs will hold the Los Angeles current price of $27.50 for No. 1 melting grade scrap at or near that level for some time.

In general, west coast mill stockpiles are adequate if not excessive. A leading Los Angeles scrap dealer reported that collection levels are at present showing little change from week to week.

Seattle—Steel scrap is arriving at the mills in good volume, but buyers are apprehensive of the coming winter in view of the increasing scarcity of surplus ships and the difficulty of getting materials from distant points in cold weather. Meanwhile, inventories are increasing gradually. The market is very firm at $27.50 per gross ton, fob mill, but some buyers are reported to be accepting material poorly or not completely prepared, thus getting preference in a highly competitive market.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

1750 tons, Cont. 246 extension to Market St. subway, Philadelphia, through Golder Construction Co., that city, to Bethlehem Steel Co.

250 tons, warehouse, Stephen Quackenbush, Harrisburg, Pa., to the Milton Steel & Supply Co., Milton, Pa.

200 tons, bridge for Warner Co., Tullytown, Pa., to American Bridge Co., Pittsburgh.

174 tons, bridge, Cont. 3036, Wabash county, Ind., for state, to Bethlehem Steel Co.; J. C. O'Connor & Sons, contractor.

156 tons, bridge, Proj. S-040(2), Clark county, Wisconsin, for state, to Bethlehem Steel Co.; Eau Claire Engineering Co., Eau Claire, Wis., contractor.

100 tons, Centrifuge Bldg., Naval Air Depot, Johnsville, Pa., to American Bridge Co., Pittsburgh.

100 tons, Bellefield Recreation Center, Philadelphia, to Bethlehem Steel Co.

STRUCTURAL STEEL PENDING

4600 tons, Sixth Ave. viaduct, Cincinnati.

4000 tons, bridge, Southern Railroad, Somerset, Ky.; bids Sept. 28.

3250 tons, including some plate, expansion, Union Electric Power Co., St. Louis.

2200 tons, powerhouse, New England Power Co., Salem, Mass.

1335 tons, channels and sheet steel piling, repairs, ship canal, Wisconsin and Manistee Harbor, Mich.; bids Sept. 28, corps of engineers, Milwaukee.

1000 tons, power house, Public Service Co. of Northern Indiana, Michigan City, Ind.; Sargent & Lundy, engineers; bids Sept. 13.

1000 tons, state highway bridge, Saratoga, N. Y.; bids Sept. 29, Albany.

910 tons, bridge structures, New Hampshire Turnpike, Seabrook to Portsmouth; bids Sept. 27, Concord, N. H.

800 tons, building, Cuneo Press Inc., Chicago; bids Oct. 4.

575 tons, wall armor, reconstruction locks No. 2, Corps of Engineers, Pittsburgh; bids Nov. 9; work also takes 169,000 square feet steel sheet piling.

400 tons, state highway bridges, Montana; bids in at Helena, awaiting PRA approval.

206 tons. Community high school, East Peoria, Ill.; bids Sept. 8.

200 tons, Central School, Wilson, N. Y.; John W. Cowper Co. Inc., Buffalo, general contractor.

150 tons, high school building, Weston, Mass.; bids in.

140 tons, structural angles, U. S. Airforce, Materiel Command, Dayton, O.; bids Sept. 28.

125 tons, Du Pont building No. 173, Parkersburg, W. Va.; bids asked.

Unstated tonnage, building, Sears Roebuck & Co., Steubenville, O.; Irwin & Leighton, Philadelphia, awarded general contract.

Unstated, lead smelter for Morris P. Kirk, Portland, Oreg.; general contract to Simonton & Steele, Portland.

Unstated, Coulee dam pumping plant; bids to Bureau of Reclamation, Denver, Sept. 30 and Oct. 7, respectively.

REINFORCING BARS . . .

REINFORCING BARS PLACED

800 tons, power station, Public Service Co. of Indiana, Noblesville, Ind., to Bethlehem Steel Co.

390 tons, Montana state office structure, Helena, to Bethlehem Pacific Coast Steel Corp., Seattle.

360 tons, office building and warehouse, Horder's Inc., Chicago, to Olney J. Dean Steel Co., Chicago; George Sollitt Construction Co., Chicago, contractor.

100 tons, residence buildings, United States Veterans Hospital, Fort Hamilton, Brooklyn, N. Y., through John Rosenblum Inc., 1841 Broadway, New York, general contractor, to Capitol Steel Corp. of New York, 15 Park Row, that city.

REINFORCING BARS PENDING

11,425 or 5225 tons, according to plan adopted, Soap Lake 12,180-foot siphon, Columbia Ba-

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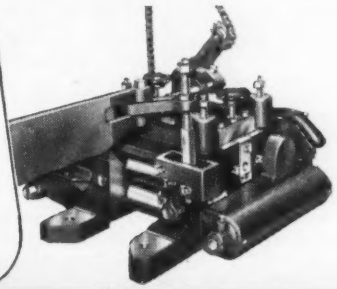

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sin project; bids to Bureau of Reclamation, Ephrata, Wash., Oct. 19.

5000 tons, Coulee dam pumping plant; Peter Kiewit Sons, Omaha, Nebr., and Morrison-Knudsen Co., Seattle, low joint bid $13,348,419, involving completion of plant and other structures, a three year project.

5000 tons, corps of engineers, Portland, Oreg.; bids Oct. 1.

630 tons, New Hampshire Turnpike, Seabrook to Portsmouth; bids to state highway department, Concord; work also takes 210 tons steel sheet and bearing piles.

303 tons, warehouse, Illinois Bell Telephone Co., Chicago; bids Aug. 31.

213 tons, Acute Hospital, Kankakee, Ill., for state; John Moroff Sons, Kankakee, Ill., low on general contract; bids Sept. 14.

200 tons, state highway project, Rutherford, N. J.; bids Oct. 8, state highway department, Trenton.

175 tons, power house, State hospital, Peoria, Ill.; bids Sept. 22.

140 tons, Alaska Railroad shops, Anchorage, to Bethlehem-Pacific Coast Steel Corp., Seattle.

100 tons or more, pumping plants and other items, Roza division, Yakima project; bids to Bureau of Reclamation, Denver, Oct. 5.

Unstated, building, Cuneo Press Inc., Chicago; bids Oct. 4.

Unstated, addition, Evanston Hospital, Evanston, Ill.; bids Sept. 23.

Unstated, first unit University of Washington Fisheries Center, Seattle; H. L. Becker, Seattle, low, $371,000.

Unstated, five steel-concrete state highway bridges, Montana; bids in at Helena, awaiting PRA approval.

PLATES . . .

PLATES PLACED

100 tons or more, penstocks and outlet pipes, Bureau of Reclamation, Denver, Spec. 2278, to Chicago Bridge & Iron Co., Chicago, $699,200.

PLATES PENDING

2700 tons, liner material for Soap Lake siphon, Columbia Basin project; bids to Bureau of Reclamation, Ephrata, Wash., Oct. 19.

2680 tons, tunnel liners, Garrison district, Riverside Junction, N. D., for U. S. Engineer; bids Oct. 17.

250 tons, pumping plants areas Nos. 13 and 14, Roza division, Yakima project, Washington state; bids to Bureau of Reclamation, Denver, Oct. 5.

100 tons or more, 2625 feet 22 in. 10 gage steel water pipe, Washington state hatchery, Lebam; Canal Boiler Works, Seattle, low, $25,653.

PIPE . . .

CAST IRON PIPE PLACED

850 tons, 6 to 16 inch, to American Cast Iron Pipe Co., by Portland, Oreg.

CAST IRON PIPE PENDING

135 tons, 4000 feet 12 inch, Class 150, or alternatives; bids to Leavenworth, Wash., Sept. 28.

RAILS, CARS . . .

RAILROAD CARS PLACED

American Arabian Oil Co., 20 all-steel twin hoppers, to Pressed Steel Car Co., McKees Rocks, Pa.

Illinois Central, 375 fifty-ton flat cars and 1500 fifty-ton hopper cars, to own shop at Centralia, Ill.

Missouri Pacific, 1000 seventy-ton gondolas to own shops DeSoto, Mo.; of which 500 are for its Gulf Coast Line and 500 for its International Great Northern.

St. Louis-San Francisco, 200 seventy-ton gondolas, to Pressed Steel Car Co., McKees Rocks, Pa.

Western Pacific, 250 seventy-ton drop-end gondolas, of which 50 will be 65 feet long and 200 will be 52 feet long; bids asked.

RAILROAD CARS PENDING

St. Louis-San Francisco, 200 seventy-ton drop-end gondolas, bids asked.

"New Process"
Punches—Dies • Rivet Sets
Compression Riveter Dies
Chisel Blanks
Made from high-grade alloy tool steels properly heat-treated, of uniform high quality—may be purchased with complete confidence for maximum service.
Write for Catalog 46
GEO. F. MARCHANT COMPANY
1420-34 So. ROCKWELL ST., CHICAGO 8, ILL.

CONSTRUCTION AND ENTERPRISE

CALIFORNIA

LOS ANGELES—Pacific Iron & Steel Exporting Co. has been incorporated with a capital of $100,000 by Vernon Barrett and Owen F. Goodman, San Marino, and Robert B. Curtiss, Los Angeles. The corporation is represented by Wellborn, Mitchell, Barrett & Rodi, Petroleum Bldg.

LOS ANGELES—Nichols Machine Co. has been incorporated with a capital of $200,000 by Charles Nichols and Zenas Leonard, Glendale, and John Q. Tannehill, Downey. The corporation is represented by Hibbard & Kleindienst, 1129 Citizens National Bank Bldg.

MICHIGAN

DETROIT, MICH. — Winter Bros. Stamping Co. has awarded a contract to Campbell Construction Co. for a factory addition.

DETROIT, MICH.—Garmon Tool & Die Co. has awarded a contract to Campbell Construction Co. for a tool shop press room.

ESCANABA, MICH. — Harnischfeger Corp., 4400 W. National Ave., has awarded a $750,000 contract to Austin Co., 510 N. Dearborn St., Chicago, for designing and construction of a plant for sugar cane manufacturing including loaders and truck cranes.

MINNESOTA

ST. PAUL—J. Schmidt Brewing Co., 382 W. 7 St., is planning to build a brewery house addition, malt bins and beer storage tanks costing $2,500,000.

TWIN LAKES, MINN.—Dairyland Power Co., La Crosse, Wis., plans to construct a $1 million diesel engine generating plant.

NEBRASKA

OMAHA, NEBR.—Fruehauf Trailer Co. of Detroit, 1717 Cass St., is planning to build a $300,000 factory at 74 & Dodge Sts.; plans by H. L. Wagner & W. B. Fullerton, Land Bank Bldg., Kansas City, Mo.

OMAHA, NEBR.—Nebraska Tractor & Equipment Co., 1516 Leavenworth St., J. R. Walkley, manager, is contemplating constructing a $125,000 shop building; plans by J. T. Allan, Brandels Theatre Bldg.

NORTH CAROLINA

FLETCHER, N. C.—Cranston Paint Work Co. has awarded a $3,500,000 contract to Potter & Shackelford Inc., Greenville, S. C., for erection of a plant; J. E. Sirvine & Co., Greenville, S. C., engineer.

OHIO

CLEVELAND—Ronor Corp. has been chartered through W. R. Kiefer, attorney, 1600 Williamson Bldg., to manufacture steel products.

CLEVELAND—Naylor Machine & Mfg. Co., 1516 Scovill Ave., is adding a new welding department which will be operated by Forest City Welding Co., formerly at 3175 Fulton Rd.

CLEVELAND—Yoder Co., John Lucas, president, 5500 Walworth Ave., has received orders for $2 million worth of equipment for making large pipe to ease the gas and oil shortage.

CLEVELAND—Robert Heller & Associates Inc., management engineers, Union Commerce Bldg., has taken over control of Jack & Heintz Precision Industries Inc., 17600 Broadway. Kenneth G. Donald, Heller vice

THIS NEW BROWNING T20 IS THE

TRUCK CRANE FOR YOUR HEAVY LIFTS

A REAL 20-ton truck crane is ready to handle your tough work with booms for 25′ to 100′. The T20 is the latest in the long Browning development of rubber mounted cranes. It takes its place alongside the well known T15, and the Wagon Cranes.

You have minute control over your long boom with the new chain boom hoist—"power down" and "power up" right back through the engine. This power boom hoist has all the speed of a "live" design and all the safety of the "worm" type.

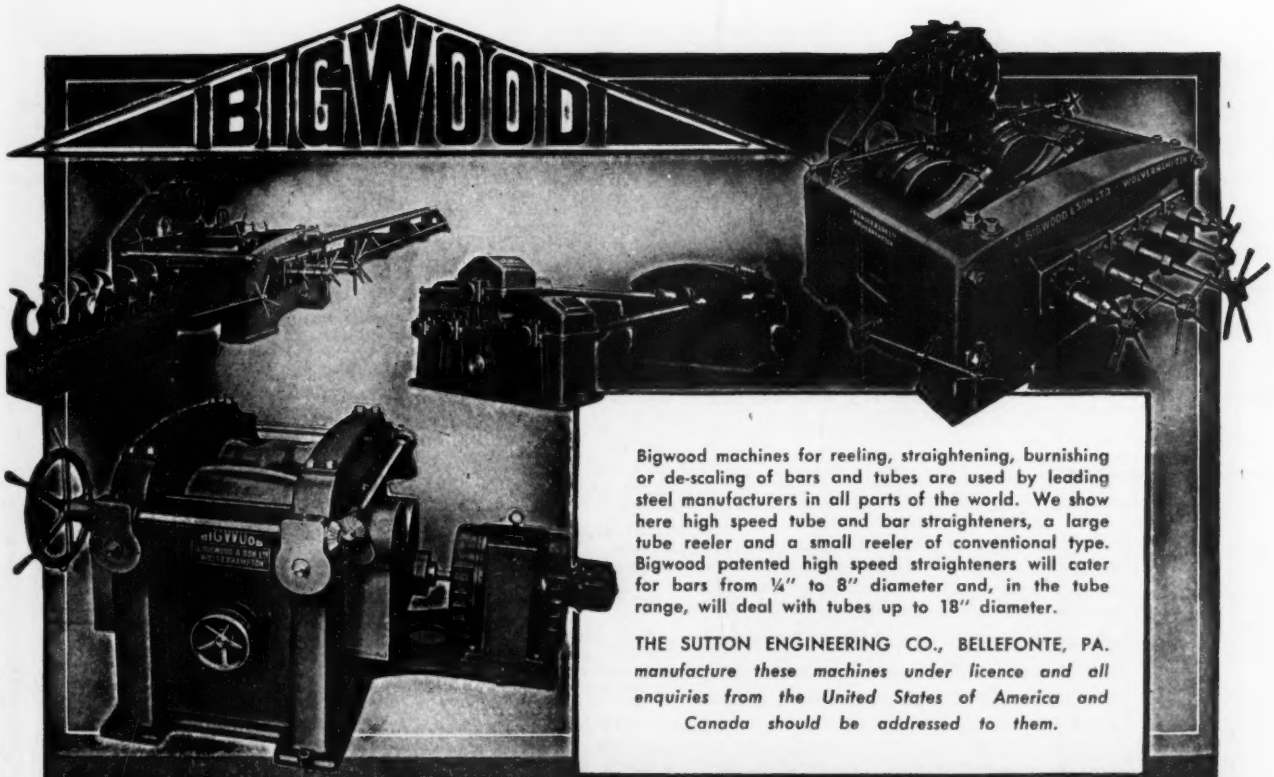
Deep section boom inserts, telescopic high gantry, I-beam chassis of *Browning proven design* with full length outriggers, these are some of the new features in the T20.

Browning truck cranes, shovels, backhoes, draglines, have been working for contractors, industrials, railroads since 1925. The T20 rounds out the line. Write for more information about it.

THE BROWNING CRANE & SHOVEL CO.
16222 WATERLOO ROAD, CLEVELAND 10, OHIO

BROWNING
LOCOMOTIVE, WAGON, TRUCK and TU-CONTROL *Cranes*

BIGWOOD



Bigwood machines for reeling, straightening, burnishing or de-scaling of bars and tubes are used by leading steel manufacturers in all parts of the world. We show here high speed tube and bar straighteners, a large tube reeler and a small reeler of conventional type. Bigwood patented high speed straighteners will cater for bars from ¼" to 8" diameter and, in the tube range, will deal with tubes up to 18" diameter.

THE SUTTON ENGINEERING CO., BELLEFONTE, PA. *manufacture these machines under licence and all enquiries from the United States of America and Canada should be addressed to them.*

JOSHUA BIGWOOD & SON LTD. WOLVERHAMPTON ENGLAND

president, has been elected president of Jack & Heintz.

CLEVELAND—U. S. Tube Co., G. W. Wattels, president, 2134 W. 53 St., is moving to 3861 E. 91 St. It is also bringing its fabricating division and plating department here from Pittsburgh. The new plant has just been purchased by Yoder Inc. from Lempco Products Co. for $180,000 and leased to U. S. Tube Co.

CLEVELAND — National Malleable & Steel Castings Co., C. H. Pomeroy, president, 10600 Quincy Ave., has acquired the railroad journal box rights of Symington-Gould Corp. It also purchased equipment including the journal box, pattern jigs, fixtures and American manufacturing rights. The new production and equipment will go to the company's Chicago plant.

MANSFIELD, O.—Johnston Aquamatic Co. has been incorporated by G. P. Gongwer, Dale E. Rose and Margaret L. Geiger, agent, 458 Parkview St., to manufacture and deal in pumps and other water control mechanisms and to conduct a general machine shop.

SALEM, O.—Sekely Industrial Tool & Mfg. Co. will manufacture and distribute the products of Wright Industries, Lisbon, manufacturer of electric fans, who is moving its equipment and parts here.

YOUNGSTOWN—Republic Steel Corp., John H. Graft, manager, will electrify its bessemer plant here as part of its multi-million program for modernizing district operations. It also is working on a by-products coke battery here to cost $5 million and two batteries at Warren at $10 million.

OKLAHOMA

PONCA CITY, OKLA.—Continental Oil Co. is planning on spending $1 million for repairing and modernizing its thermo for catalytic cracking plant, and $5 million on refinery expansion.

PENNSYLVANIA

LANCASTER, PA.—Armstrong Cork Co., Liberty & Mary Sts., plans to build warehouse additions costing $1 million; Charles S. Conrad, c/o owner, engineer.

TENNESSEE

MEMPHIS, TENN.—Texas Gas Transmission Corp. has awarded a contract to N. A. Saigh Co., San Antonio, and Horrigan Construction Co., Houston, for 63 miles of pipe line extending from Lula, Miss., to Memphis.

TEXAS

BORGER, TEX.—Rock Creek Carbon Plant is planning to build reconstructing machine shop and warehouses, totaling $150,000.

SAN ANTONIO, TEX.—D. W. Haering & Co. Inc., 205 W. Wacker St., Chicago, plans to build a $3 million chemical plant on Harding Blvd. in Harlandale; plans by Ralph H. Cameron, Transit Tower.

WISCONSIN

PORT WASHINGTON, WIS.—Simplicity Mfg. Co., 336 S. Spring St., has awarded a $250,000 contract to Hunzinger Construction Co., 4541 N. 124 St., Milwaukee, for a factory addition; R. A. Messmer & Bros. 231 W. Wisconsin Ave., Milwaukee, architects.

CANADA

CALGARY, ALBERTA, CAN.—Calgary Power Ltd. is planning to spend $18 million on a hydro electric plant and other expansions.

VANCOUVER, B. C. — Canadian Industries Ltd., Montreal, Que., has awarded a $300,000 contract to Dominion Construction Co Ltd., 150 West 1 Ave., for construction of a plant.

TORONTO, ONT.—Mall Tool Corp., 7740 S. St., South Chicago, is planning to construct a $150,000 plant on Queen Elizabeth Highway, Stobicobe; plans by J. A. Hewitt, Richmond Hill.

WELLAND, ONT.—Page Hersey Tubes Ltd., 100 Church St., Toronto, has awarded a $500,000 contract to Dickie Construction Co. Ltd., 17 Yorkville, for an electric weld pipe mill.

SHAWINIGAN FALLS, QUE.—Canadian Industries Ltd., Box 10, Montreal, has awarded a $600,000 contract to Fraser Brace Engineering Co. Ltd., 360 St. James, Montreal, for erection of a cellulose sponge plant.

ALASKA

SITKA, ALASKA—Alaska Industrial Corp., c/o Roy Johnson, Arctic Bldg., Seattle 4, is contemplating construction of a $15 million pulp mill; Harza Engineering Co., 400 W. Madison St., Chicago, consulting engineer.

MEXICO

MEXICO CITY, MEXICO—Oxidos de Zinc, La Azteca S. A., Candelaria, 66, Mexico, D. F., is planning to build a $350,000 zinc powder factory.

ARGENTINA

BUENOS AIRES, ARGENTINA—Florida Society Ltd., c/o Ministry Industry & Commerce, plans to build a $200,000 plant for manufacturing flexible metal tubes.

SANTA FE, ARGENTINA—Republic of Argentine, Buenos Aires, will build a $300,000 thermoelectric emergency station; Department of Water & Power, Buenos Aires, engineers.

PRICES OF LEADING FERROALLOYS PRODUCTS

(*Concluded from Page* 135)

Contract, basis fob Niagara Falls, N. Y., lump per lb cl 6.90c; ton lots packed, 7.40c; 200 to 1999 lb, 8.15c, smaller lots 8.65c. Spot up 0.5c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 13.75c per lb or briquet, carload packed 14.45c, ton lot 15.25c, less ton 16.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk, 10.00c per lb of briquet, c.l. packaged 10.80c, ton lot 11.6c, less ton 12.5c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 10.0c per lb of briquet, c.l. packed 10.8c, ton lot 11.6c, less ton 12.5c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (**Large size**—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 5.75c per lb of briquet, c.l. packed 6.55c, ton lot 7.35c, less ton 8.25c.

(**Small size**—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 5.90c c.l. packed 6.70c, ton lots 7.50c, less ton 8.40c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18%, and Si 53-59%). Contract, carload, lump, bulk 19.25c per lb of alloy, carload packed 20.05c, ton lot 21.55c, less ton 22.55c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 17.9c per lb of alloy, carload packed 19.1c, ton lot 21.0c, less ton 22.5c. Delivered. Spot, add 0.25c.

VANADIUM ALLOYS

Ferrovanadium: Open Hearth Grade (Va 50-55%, Si 8% max., C 3% max.). Contract, any quantity, $2.90 per lb of contained Va. Delivered. Spot, add 10c. **Special Grade** (Va 50-55%, Si 4% max., C 1% max.), $3. **High Speed Grade** (Va 50-55%, Si 1.50% max., C .20% max.), $3.10.

Vanadium Oxide: Contract, less carload lots, $1.20 per lb of contained V_2O_5. Spot, add 5c. **Grainal:** Vanadium Grainal No. 1, 93c; No. 6, 63c; No. 79, 45c; all fob Bridgeville, Pa., usual freight allowance.

TITANIUM ALLOYS

Ferrotitanium: (Ti 20-25%, Al 3% max., Si 4% max., C 0.10% max.). Eastern Zone, contract, ton lot, 2" x D, $1.35 per lb of contained Ti, less ton $1.40. (Ti 40-45%, Al 7% max., Si 4% max., C 0.10% max.). Ton lot $1.23, less ton $1.25; Central, add 4c for 20-25% Ti grade, and 2.1c for 40-45% grade; Western, add 13.5c for 20-25% Ti grade, and 7.2c for 40-45% grade. Freight allowed. Spot, add 5c.

Ferrotitanium, High-Carbon: (15-20%). Contract basis, per net ton, fob Niagara Falls, N. Y., freight allowed to destination east of Mississippi river and north of Baltimore and St. Louis, 6.8% C, $142.50; 3-5% C, $157.50.

TUNGSTEN ALLOYS

Ferrotungsten: (W 70-80%). Contract, 10,000 lb W or more, $2.25 per lb of contained W; 200 lb W to 10,000 lb W, $2.35; less than 2000 lb W, $2.47. Spot, add 2c.

Tungsten Powder: (W 98.8% min.). Contract or spot, 1000 lb or more, $2.90 per lb of contained W; less than 1000 lb W, $3.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloys: (Zr 12-15%, Si 39-43%, Fe 40-45%, C 0.20% max.). Contract, c.l., lump, bulk 6.6c per lb of alloy, c.l. packed 7.35c, ton lot 8.1c, less ton 8.95c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract, carload, lump, packed 20.25c per lb of alloy, ton lot 21c, less ton 22.25c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Contract, 100 lb or more, 1" x D, $1.20 per lb of alloy. Less than 100 lb $1.30 delivered. Spot, add 5c.

Borosil: (3 to 4% B, 40 to 45% Si), $6.25 per lb contained B, fob Philo, O., freight not exceeding St. Louis rate allowed.

Bortam (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 0.90 to 1.15%). Net ton to carload, 8c per lb, fob Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Mn 5% max., Si 8% max., C 0.5% max.). Contract, ton lot, 2" x D, $2.75 per lb of contained Cb, less ton $2.80. Delivered. Spot, add 10c.

CMSZ Mixes: (No. 4—Cr 45-49%, Mn 4-6%, Si 18-21%, Zr 1.25-1.75%, C 3-4.5%; No. 5—Cr 50-56%, Mn 4-6%, Si 13.50-16.0%, Zr 0.75-1.25%, C 3.50-5%). Carload, 12 M x D, carload packed 19.0c per lb of material, ton lot 19.75c, less ton 21.0c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l. and 3.05c for l.c.l. Delivered.

Sileaz Alloy: (Si 35-40%, Ca 9-11%; Al 6-8%, Zr 3-5%, Ti 9-11%, Boron 0.55-0.75%). Carload, packed, 1" x D, 43c per lb of alloy, ton lot 45c, less ton 47c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.). Contract, carload, packed, ½" x 12 M, 16.5c per lb of alloy, ton lot 17.25c, less ton 18.5c. Delivered. Spot, add 0.25c.

Graphidox No. 4: (Si 56%, Ca 5%, Ti 9%). C.l. packed, 16.50c per lb of alloy; ton lots 17.90c; less ton lots 19.40c, fob Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%; V-7, Cr 28-32%, Si 15-21%, Mn 14-16%). C.l. packed, 12.95c per lb. of alloy; ton lots 14.60c; less ton lots 15.85c, fob Niagara Falls, N. Y.; freight allowed to St. Louis.

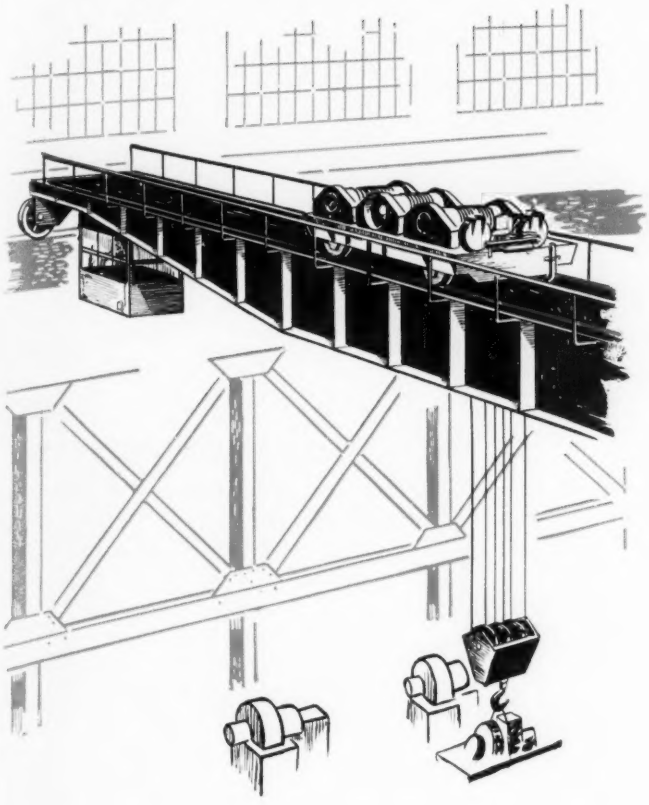
Simanal: (Approx. 20% each Si, Mn, Al). Packed, lump, carload 11c, ton lots 11.25c, smaller lots 11.75c per lb alloy; freight not exceeding St. Louis rate allowed.

Ferrophosphorus (23-25% based on 24% P content with unitage of $3 for each 1% of P above or below the base): Gross tons per carload, fob sellers' works, Mt. Pleasant, or Siglo, Tenn.; $65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo, fob Langeloth and Washington, Pa., furnace, any quantity 95.00c.

FOR 18 YEARS

never a bearing failure with Farval



FARVAL—*Studies in Centralized Lubrication* No. 106

EIGHTEEN years ago, Farval Centralized Lubrication was installed on a 10-ton overhead traveling crane in one of the steel mills in the Chicago district. A recent report on this early job states that the Farval systems are still in service, as good as on the day they were installed, and that since 1930 the crane has never been down for a bearing repair or replacement. In short, there has never been a minute's trouble due to faulty lubrication.

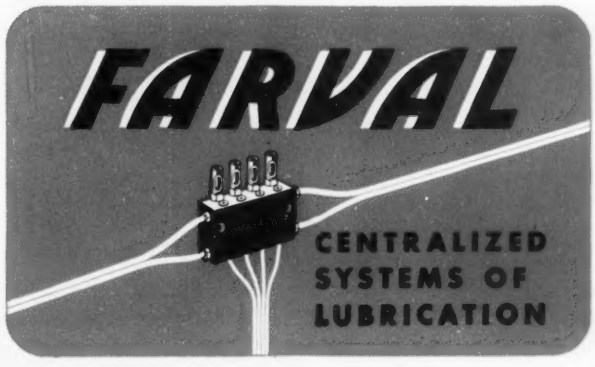
Two manually-operated Farval systems—one on the bridge and one on the trolley—serve 56 points of lubrication including the wheel bearings. In less than five minutes, every eight hours, the operator lubricates every bearing on the crane from two conveniently located hand pumps. No need to climb all over the crane and never a bearing is skipped. Grease consumption is greatly reduced because there is no waste, and drippage is practically eliminated.

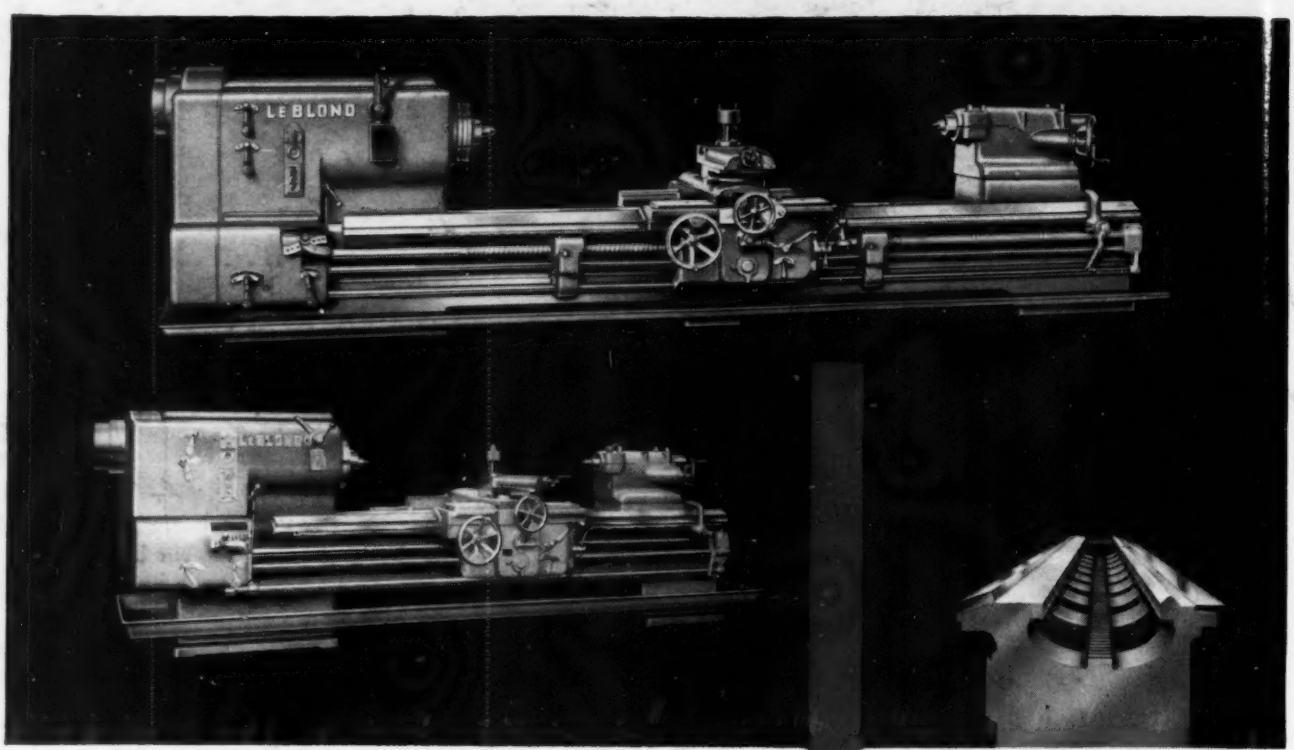
More than 2000 Farval systems have been installed on cranes. Many of them are roller bearing cranes, where clean grease is essential and overlubrication should be avoided.

Farval delivers oil or grease under pressure to a group of bearings from one central station, in exact quantities, as often as desired. It does its work while the equipment is in operation. Farval—the Dualine System with the Positive Piston Displacement Valve—that has but 2 Moving Parts—is Fully Adjustable—and with a Tell-tale indicator at each bearing to show the job is done.

Write for Bulletin 25 for a full description of Farval. The Farval Corporation, 3270 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.



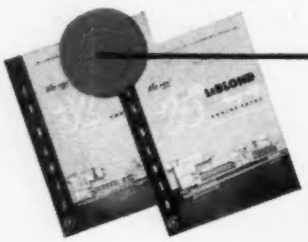


Hardened Ways and Enclosed Feed Box assure long life accuracy of the new 25" and 32" LeBlond Heavy Duty Engine Lathes...

The hardened and ground steel bed ways—furnished as standard on the new 25" and 32" LeBlond heavy duty engine lathes—give you the accuracy you need today and tomorrow. The ways are hard (62-66 Rockwell C), are replaceable, and retain lubricant thereby reducing friction and wear.

The totally enclosed, automatically lubricated quick change box eliminates all feed box maintenance, and assures longer gear life. Gears are inside a protective oil-tight casting which chips and other abrasive matter positively cannot penetrate. Clean, filtered oil supplied continuously, automatically.

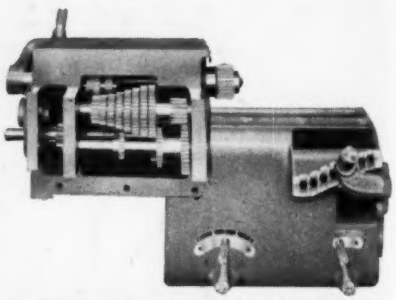
And there are many more advantages including the exclusive LeBlond one-piece apron with single lever cross and length feed control and the thrust-lock tailstock with full length bearing support for spindle.



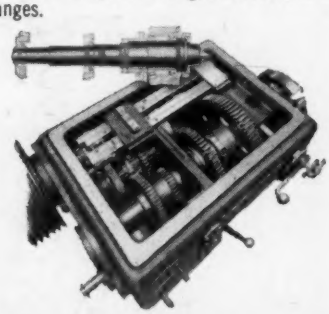
for complete information

ask the LeBlond distributor nearest you for the latest bulletins.

HARDENED AND GROUND STEEL BED WAYS are furnished at no additional cost. Note front way is fitted to conform to the LeBlond compensating vee-way principle.



ENCLOSED QUICK CHANGE BOX is lubricated automatically, requires no operator attention. Your choice of two optional ranges of feed and thread changes.



16 SPEED GEARED HEADSTOCK. Three-bearing spindle, free running gear train. High speed gears shaped or hobbed, hardened and ground. Your choice of two optional ranges.

THE R. K. LeBLOND MACHINE TOOL CO., CINCINNATI 8, OHIO

LARGEST MANUFACTURER OF A COMPLETE LINE OF LATHES

NEW YORK 6, N. Y., Singer Bldg., 149 Broadway, COurtland 7-6621
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DETROIT 2, MICHIGAN, New Center Building, TRinity 3-5561

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